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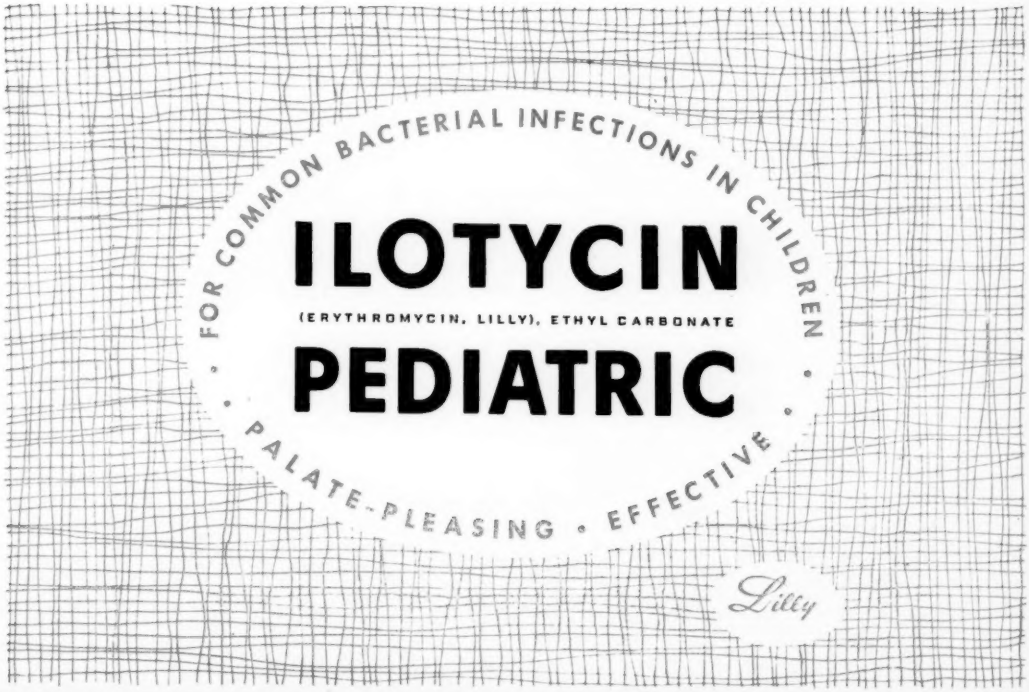

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 37 **September, 1954** **Number 9**

Contents

Problems Arising in the Treatment of Adrenal Insufficiency with Cortisone and Hydrocortisone
Edmund B. Flink, M.D., Minneapolis, Minnesota 623

Untoward Effects of Cortisone and Corticotropin on the Gastro-intestinal Tract
Eric E. Wollaeger, M.D., Rochester, Minnesota. 626

Steroid Therapy in Dermatology
Francis W. Lynch, M.D., Saint Paul, Minnesota 629

The Pathologist as a Practitioner of Medicine
Fifty Years of Progress
J. R. Schenken, M.D., Omaha, Nebraska..... 631

Cancer of the Cervix
A. N. Arneson, M.D., Saint Louis, Missouri..... 636

Surgical Operation in Idiopathic Ulcerative Colitis
Clarence Dennis, M.D., and Karl E. Karlson, M.D., Brooklyn, New York..... 641

Liver Biopsy: A Necropsy Study
Robert O. Brandenburg, M.D., Rochester, Minnesota 644

The Use of Hemodialysis in the Treatment of Barbiturate Intoxication
I. A. Brown, M.D., J. S. Ansell, M.D., and *B. C. Schiele, M.D.*, Minneapolis, Minnesota.. 650

Seminar:
Chronic Ulcerative Colitis
John B. O'Leary, Minneapolis, Minnesota..... 653

Laboratory Aids to Medical Practice:
Biopsy of Lymph Nodes
Clyde J. Dawe, M.D., Rochester, Minnesota.... 664

President's Letter
Early Detection—A "Must"..... 666

Editorial:
Drinking Driver—Sportsman or Murderer?..... 667
The Doctor and Television..... 667
General Surgery as a Career?..... 668
Medical Journalism: A New Addition to the College Curriculum..... 669
Routine Chest Roentgenograms..... 670

The Dean's Page
World Health Assembly..... 671

Medical Economics:
Health Insurance Shows "Mushroom Growth".... 672
Official Warns of Social Security..... 673
Socialized Medicine "To Stay" in Britain..... 673

Public Health:
Minnesota Has Epidemic of Viral Hepatitis..... 674

Minnesota State Medical Association
House of Delegates
Summary of Proceedings, 1954..... 675

Minneapolis Surgical Society
Meeting of March 4, 1954
Present Status of Surgery in the Treatment of Toxic Goiter
Edward S. Judd, Jr., M.D., Rochester, Minnesota 683

Minnesota Academy of Medicine
Meeting of December 9, 1953
Fat Embolism
Burtis J. Mears, M.D., Saint Paul, Minnesota.. 686

In Memoriam 688

Reports and Announcements 690

Of General Interest 694

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Volume 37 **September, 1954** **Number 9**

PROBLEMS ARISING IN THE TREATMENT OF ADRENAL INSUFFICIENCY WITH CORTISONE AND HYDROCORTISONE

EDMUND B. FLINK, M.D.
Minneapolis, Minnesota

ALTHOUGH there are some problems in the use of cortisone and hydrocortisone in the treatment of adrenal insufficiency, the benefits from use of these compounds far outweigh any problems. Since the benefits are really very great, I shall spend a few minutes describing them and outlining a satisfactory regime for treatment of Addison's disease.

Adrenal insufficiency causes a loss of sodium and chloride in the urine decrease in renal excretion of urea and of potassium, faulty handling of water with tendency to water intoxication, very poor tolerance for stress of any kind, decreased gluconeogenesis with resulting spontaneous hypoglycemia on fasting more than twelve to sixteen hours, and marked decrease in muscle strength. These phenomena make untreated adrenal insufficiency a very serious situation. The use of cortisone and hydrocortisone have greatly improved the well-being of patients with Addison's disease and has practically eliminated the occurrence of crises. Treatment with desoxycorticosterone and adrenal cortical extract prolonged the lives of many patients and permitted many to be fairly active. Cortisone treatment has improved vigor and work tolerance to or toward normal, improved muscle strength, corrected abnormal water metabolism, promoted gluconeogenesis, corrected electroencephalographic abnormalities, and prevented development of crises during infections and other stress-producing situations.

From the Department of Medicine, Veterans Administration Hospital and University of Minnesota, Minneapolis, Minnesota.

Presented at the annual meeting of the Minnesota State Medical Association, Duluth, June 8, 1954.

One of the best indices of the efficacy of present treatment is the decrease in the need for hospitalization. The number of admissions for treatment of Addison's disease was obtained by analyzing the records of thirteen addisonian patients who were treated chiefly with desoxycorticosterone before 1950 or 1951 and who are being treated with cortisone with or without other supplements to the present time. There were forty-eight admissions to the hospital (often prolonged and complicated illnesses) in 43.2 patient years. Since cortisone treatment was instituted, there have been only four admissions in 35 patient years in this same group of patients. If the length of hospital stay under these circumstances were also taken into consideration, the results would be even more striking. Reciting the case histories of most of these patients would reveal a most remarkable improvement—often from a life of chronic invalidism to a really full normal life. Sorkin and Soffer[5] do not agree that cortisone is as beneficial as indicated above. On the other hand, Thorn and his collaborators[6,7] have had a large experience with the use of these compounds and report very favorable results.

Analysis of the records of twenty patients has revealed the following facts about treatment which is effective in controlling symptoms very satisfactorily:

1. Average daily dose of cortisone (oral)	*25 mg.*	*18.5 mg.*	*12.5 mg.*
Number of patients	6	2	12
2. Requirement for Desoxycorticosterone	Oral	Parenteral	None
Number of patients	5	5	10

The dose of cortisone taken orally should be divided into at least two doses (and three doses are often desirable). It has been found to be practical and desirable to give doses as follows: ¼ tablet on arising and another ¼ tablet at 1:00 to 2:00 P.M. If a dose of 25 mg. is needed, 10 to 12.5 mg. can be given in the morning, 5 to 6.25 mg. at noon, and 5 to 6.25 mg. in the afternoon. It has become apparent that it is usually unnecessary and even unwise to give an evening dose. Patients complain of insomnia if the dose is split into two equal parts and given at twelve-hour intervals. By giving the doses as described above, one simulates what actually happens in health. The adrenal cortex in normal healthy individuals is most active in early morning hours, and conversely secretes very little steroid material during the evening and night hours.

Whenever a patient has a respiratory infection or when he is undergoing any unusual stress or is injured, the dose of cortisone should be doubled or tripled. If the patient vomits, it is necessary to administer the cortisone intramuscularly and a dose of 50 to 100 mg. is indicated. It should be remembered that absorption of cortisone from a muscle depot is much slower than from an oral dose. This has been known from clinical evidence for some time, and it has been conclusively proven by measuring the plasma 17-hydroxycorticosteroid content after oral and intramuscular routes of administration.[2] After a dose of 100 mg. orally, there is a very high peak in two hours but with no 17-hydroxycorticosteroid demonstrable at twenty-four hours. Conversely, after only 50 mg. given intramuscularly an appreciable concentration of these compounds is measurable at twenty-four hours.

As has been indicated above, at least half the patients will need to receive some form of desoxycorticosterone acetate. Oral linguets (2.0 mg.) once or twice a day usually suffice. Daily intramuscular injections (0.5-2.0 mg/d.) afford exact and yet flexible therapy but are inconvenient. Intramuscular injection of a new preparation, a micro-crystalline suspension of the trimethyl-acetate ester of desoxycorticosterone, lasts thirty to forty days so the dose should be from 30 mg. to 60 mg. or even more once every four to six weeks. Pellet implantation also is a good method but is unnecessary under most circumstances now. Unless there is specific contra-indication to DCA, it is probably better to administer some form of it to all patients with Addison's disease.

Cortisone or hydrocortisone is also very useful in the treatment of the adrenal cortical insufficiency secondary to hypopituitarism. The results in the latter condition are often as striking as in primary adrenal insufficiency; but because there are multiple glandular deficiencies, replacement therapy often is not successful in completely correcting the symptoms.

The treatment of addisonian crisis will be discussed in general terms to indicate the order of magnitude of therapy. Cortisone or hydrocortisone should be administered orally if the patient is not vomiting. An initial dose should be 50 to 100 mg. and a total dose for the first day should be from 100 to 300 mg. When vomiting occurs or the patient is unconscious, the intramuscular dose should be from 100 to 200 mg. initially with a total dose of 150 to 300 mg. on the first day. Usually, the condition is so much better the second day that the total dose by either route can be reduced to 100 mg. If hydrocortisone is available for intravenous use, an initial dose of 50 mg. followed by an infusion of 5 to 10 mg. per hour for the first twelve to twenty-four hours is the most effective therapy thus far available.

In the treatment of patients with severe collapse where the hydrocortisone preparation for intravenous use is not available, adrenal cortical extract is indicated. An initial dose of 50 cc. of aqueous adrenal cortical extract intravenously immediately and 50 cc. in the first infusion flask will be effective until enough cortisone is absorbed from deposits in the muscle to be effective.

Desoxycorticosterone acetate (DCA) in oil (10 mg.) should be given intramuscularly unless there is evidence of recent toxicity from this drug. On subsequent days, the dose can be quickly lowered to maintenance amounts (v.s.).

The need for salt and fluids is variable. If the patient has not been treated previously, there is need for 2 to 3 liters of saline with glucose. Usually, in the previously treated patient, who has developed a crisis because of infection or trauma, the amount of sodium chloride should be restricted to 9.0 Gm. (or 1,000 cc. of physiological saline) and a total amount of water to 2,000 to 3,000 cc. a day.

After devoting a major portion of the time

to discussing advantages and doses of cortisone, I shall devote a short time to some problems. Some patients are quite sensitive to cortisone or hydrocortisone on initial administration. The patients may become mentally stimulated during the initial period of treatment. If this occurs, it is imperative that the dose be reduced and spread out over the whole day and then gradually increased to a maintenance dose of 12.5 mg. or more per day. When a patient exhibits such sensitivity, it is very important to give the drug in 3 or more divided doses, since there is a high peak in the plasma and then a rapid decline from any single oral dose.

There is no evidence that the use of moderate doses (12.5 to 25 mg.) has interfered with the healing of tuberculosis—in fact, addisonian patients with tuberculosis get along better with than without cortisone.[1]

The maintenance dose of cortisone is not large enough to cause difficulty with sodium retention or potassium depletion. In fact, it is usually necessary to administer extra salt, and in about half the patients desoxycorticosterone is also needed.

Knowlton[3] has described patients who developed hypertension for the first time when given cortisone in relatively small doses. This occurred in one patient who had been maintained on desoxycorticosterone without hypertension for seven years. I have not made any similar observations.

One patient was admitted to the University Hospital and shortly afterward another patient was admitted to the Veterans Hospital with identical situations. Each patient had well-established Addison's disease, and both had developed acute respiratory infections. On admission, there was considerable confusion as to the needs of these patients because the serum electrolyte concentrations were entirely normal, but in spite of this the blood pressure was low and the patients were very ill. The immediate need for saline infusion was not recognized though it was given later. In both instances, there was a failure of recognition of the presence of hemoconcentration. The hemoglobin and hematocrit concentrations were significantly higher than they had been in the recent past. It is therefore important to remember that hemoconcentration can and does occur without abnormality in electrolyte concentrations, especially in patients who have been getting along well on ordinary maintenance doses of cortisone until onset of an infection. This difficulty can be quickly remedied. On the other hand, when most patients who are maintained on cortisone develop an infection or injury, the need is for more cortisone and not for large amounts of salt and water. Patients who have had total adrenalectomy are particularly prone to develop acute and rapidly progressive symptoms on cortisone withdrawal. This is not due to fluid loss and sodium loss but more likely due to an internal shift of water[4] with consequent decrease in concentration of sodium. Cortisone corrects this difficulty promptly.

Although corticotropin (ACTH) cannot be used in the treatment of primary adrenal insufficiency for obvious reasons, it is very useful in the diagnosis of adrenal cortical insufficiency. In the first place, the eosinophil response following the intramuscular injection of 25 U. of ACTH is fairly good as a screening procedure, but is likely to give false positive tests. A false negative test also occurs occasionally.[3] It is my impression that the incidence of false positive reactions (failure to produce a 50 per cent decrease in eosinophils in four hours) occurs in about 10 per cent of patients with various diseases not affecting the adrenal glands. Therefore the intravenous administration of 20 to 25 units of ACTH in 500 cc. saline solution over an eight-hour period is far superior. The determination of decrease of eosinophils offers a reliable qualitative appraisal of adrenal cortical function. There is a decrease of 75 to 100 per cent at the end of eight hours. Determination of the increase in excretion of 17-hydroxycorticosteroids or of 17-ketosteroids affords a better quantitative appraisal than the eosinophil counts.[7] When an eight-hour infusion is given on two successive days, the average normal rise of 17-hydroxycorticosteroids is 10 mg. for the first twenty-four hours and 20 mg. for the second twenty-four hours, and about half this much increase in 17-ketosteroids at the same time. In patients with adrenal cortical insufficiency secondary to pituitary failure or secondary to prolonged administration of cortisone or hydrocortisone, it is common to see little or no response to the first and even the second intravenous injection of ACTH. Maximal stimulation is obtained usually by the fourth day. ACTH gel in a dose of 30 to 40 units b.i.d. produces

(Continued on Page 652)

UNTOWARD EFFECTS OF CORTISONE AND CORTICOTROPIN ON THE GASTROINTESTINAL TRACT

ERIC E. WOLLAEGER, M.D.
Rochester, Minnesota

IN RECENT years, an increasing number of reports have appeared in the medical literature concerning serious gastrointestinal complications among patients receiving cortisone or corticotropin (ACTH). Some of these patients have had no previous symptoms or signs of gastrointestinal disease; others who were known to have gastrointestinal disease before treatment experienced exacerbations after treatment was begun. By far, the greatest number of reports are concerned with the development of new or recurrent gastric or duodenal ulcers.

In a careful, but by no means exhaustive, search of the medical literature, I was able to find reports of fifty-five cases in which either new peptic ulcer or serious exacerbations of peptic ulcer developed while the patients were taking cortisone or corticotropin or shortly after they discontinued its use (Table I). Of these, seventeen patients had gastric ulcers, twenty-five duodenal and two had both gastric and duodenal ulcers. Nine patients had "peptic ulcers" but the exact site of the lesions was not indicated. Two had jejunal ulcers. Almost half of the patients in the series (twenty-five of the fifty-five) had never had previous signs or symptoms of ulcer. The incidence of serious complications in these reported cases is high since either massive hemorrhage or free perforation occurred in about 45 per cent.

Because of the high incidence of peptic ulcer in the general population, and the great frequency with which cortisone and corticotropin are administered, the possibility must be considered that development of these ulcers may be the result of mere chance and that administration of the steroids has no causative role. This possibility seems unlikely, however. The great frequency of major complications (hemorrhage and perforation) among these patients in whom new and recurrent ulcers developed while being treated with cortisone or corticotropin would in itself seem to indicate some cause-and-effect relationship. Although my search of the literature disclosed only fifty-five cases of ulcer associated with this type of medication, it seems probable that many other cases of this type have gone unrecognized or unreported. If the association of the development of peptic ulcers with administration of these hormones is purely a matter of coincidence, it seems strange that no such association has been noted for other commonly used drugs, such as salicylates, laxatives and vitamin capsules, which the American public consumes in great quantities. Furthermore, there is good theoretic basis for the development of ulcers while patients are taking cortisone or corticotropin. Gray and his colleagues[9] showed that these hormones increase the fasting basal secretion of hydrochloric acid and pepsin into the stomach, and the degree of increase is comparable to that found in patients with active duodenal ulcers. From the evidence now available, we, therefore, must strongly suspect that there is a causative connection between the administration of corticotropin and cortisone and the development of peptic ulcers in some patients.

The percentage of patients who will experience symptoms from newly developed or reactivated peptic ulcers while taking these hormones is not definitely known. Halsted[12] estimated about 4

TABLE I. PEPTIC ULCERS DEVELOPING OR RECURRING IN COURSE OF CORTISONE OR CORTICOTROPIN THERAPY*

	Ulcer					
	Gastric	Duodenal	Gastric and Duodenal	Peptic (site not recorded)	Jejunal	Total
Cases	17	25	2	9	2	55
No previous ulcer	5	12	2	6	0	25
Reactivation of previous ulcer	12	13	0	3	2	30
Massive hemorrhage	3	3	2	3	2	13
Perforation	1	9	0	2	0	12

*Cases comprising this table were recorded in references 1-13; 16-20; 23; 26-29.

From the Section of Medicine, Mayo Clinic and Mayo Foundation. The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

Read at the meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 8, 1954.

per cent because symptoms and signs of ulcer occurred in sixteen of 360 patients who were receiving cortisone or corticotropin in his hospital. Freyberg and his associates[8] observed massive hemorrhage from the upper part of the gastrointestinal tract in two of forty-four patients being treated for rheumatoid arthritis. One of these patients had a duodenal ulcer; the source of the bleeding in the other patient was not discovered. Hollander[16] reported only four active peptic ulcers among 324 patients, most of whom had been taking one or the other hormone for short periods. The incidence of active ulcer was a little more than 1 per cent in this series.

Not all patients with known ulcers are made worse by corticotropin or cortisone therapy. Freyberg and associates[8] mentioned several such patients who had no flareup of ulcer symptoms, even with prolonged cortisone therapy. Sandweiss and his colleagues[26] cited the cases of two patients with active duodenal ulcer who became asymptomatic while taking these hormones. Of a group of eighteen patients with active gastric ulcers treated by Forbes,[7] three received corticotropin and eight cortisone. Seven patients received no special treatment and served as controls. All eighteen patients received the same diet which was free of irritating foods and which provided between-meal feedings. The ulcers of three patients treated with corticotropin failed to show improvement radiologically, and one of them became worse symptomatically. On the other hand, six of the eight patients treated with cortisone became free of symptoms of ulcer, and their ulcers healed completely. Healing of the ulcers also occurred in six of the seven patients who received no special treatment.

Just why there should be such a great difference in reaction to these drugs among patients receiving them, particularly among those with known ulcers, is a baffling question, indeed. It seems clear, however, that the effect of these steroids is only one of a number of factors operating to produce or to prevent the occurrence of peptic ulcers. Under certain circumstances and in certain individuals the hormones appear to play a determining role in producing ulcers. There seems to be little correlation between the dose of hormone administered and the occurrence of ulcers, although in most of the reported cases the patients have received more than 50 to 75 mg. per day. The duration of treatment also seems of little significance since some ulcers have flared up and perforated after only three to five days of treatment, whereas others have appeared after the drugs have been taken for many months.

Peptic ulcers have not been the only problem encountered. Perforation of involved segments of bowel while cortisone or corticotropin was being administered has been reported as occurring in at least eight cases of chronic ulcerative colitis and in two cases of regional enteritis.[13,14,21,27,28,31] Texter and his colleagues[24,30] have called attention to the occurrence of giant ulcers of the colon or rectum in patients with chronic ulcerative colitis. These large ulcers were found in five of fifteen patients receiving steroid therapy and were quite different in appearance and in structure from the ulcers usually seen in this disease when these drugs are not being administered. Sauer and his associates[27] encountered similar punched-out ulcers of the rectum in two patients being treated for rheumatoid arthritis who had never had previous rectal symptoms. A third patient observed by them had diffuse proctitis, while under treatment for rheumatoid spondylitis. Other intestinal complications recorded in the literature concern two patients who had perforations of the ileum and jejunum within one month after undergoing ileostomy for severe ulcerative colitis. The perforation was not closely associated with hormone therapy in one of these patients[13] since it occurred ten weeks after treatment with corticotropin was discontinued. The perforation occurred in the other patient[28] while corticotropin was being administered. A few other miscellaneous gastrointestinal complications of steroid treatment have been reported. These include a ruptured gall bladder,[22] a ruptured Meckel's diverticulum,[15] an exacerbation of ulcerative esophagitis[27] and the occurrence of phlegmonous gastritis.[25]

Ulcerations and perforations of the bowel in segments which are not exposed to gastric secretions suggest that mechanisms other than hypersecretion of gastric juice are operating to produce these lesions. Whether these mechanisms are related to the inhibition of inflammatory reactions or to the so-called antifibroplastic action which these hormones are thought to produce is at present a matter of conjecture. It seems possible that factors which promote resistance to ulceration in the normal gastrointestinal tract may be suppressed in some manner by these hormones.

Several authors have called attention to an absence of typical clinical signs of peritonitis in patients with free perforation of the gastrointestinal tract which occurred while they were taking these steroids. They mentioned particularly the absence of fever, abdominal rigidity and severe pain.[1,5,18,28] By no means have all perforations been characterized by such atypical clinical findings, however.[31]

Summary

Gastrointestinal complications occur in a small percentage of patients being treated with cortisone or corticotropin. The most common of these complications has been the development of or recrudescence of gastric or duodenal ulcers. Massive hemorrhage or free perforation has been associated in a high percentage of cases. Other gastrointestinal complications of steroid therapy include perforations of inflammatory lesions of the small and large intestine and the development of ulcers of the colon.

Cortisone and corticotropin should be administered cautiously, if at all, to patients with known peptic ulcers, and treatment for the ulcer should be carried out from the onset of steroid therapy, even if there are no symptoms or signs of ulcer activity.

The possibility of serious gastrointestinal complications should be kept in mind with respect to all patients who are receiving cortisone or corticotropin.

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(Continued on Page 649)

STEROID THERAPY IN DERMATOLOGY

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FOLLOWING the introduction of hydrocortisone not only the initial claims for its usefulness but also the early observed results have been so encouraging that some have inquired whether there will any longer be need for dermatologic training, suggesting that the general practitioner may now be able to cure all dermatoses with this drug. This, of course, is a gross exaggeration: there is, however, no doubt that the application of hydrocortisone is extremely effective in providing relief from itching. In so doing, it prevents scratching, and in many instances an eruption then heals. Such a sequence is particularly likely in dry, localized neurodermatitis (lichen simplex chronicus) where the persistent eruption has been largely due to habit scratching. Improvement also occurs in other forms of atopic dermatitis, if the cause has been removed. If eczema were all "allergic" and if one could depend upon allergic study and the subsequent elimination of causes, then it would be very simple, indeed, to cure. Topical use of hydrocortisone is less satisfactory in non-allergic dermatoses and is of practically no value in chronic discoid lupus erythematosus, psoriasis, and many other disorders. It is not useful when infection is present, unless one combines an antibiotic agent as is done by one manufacturer in Neo-cortef, which contains neomycin and hydrocortisone. Even such a combination will not prove satisfactory if the infection is mycotic.

Topical Therapy

Perhaps the best indication for topical hydrocortisone is a dry itching localized eczematous eruption on the lids, at the nape, in the axillas, or in the anogenital region. Even in these instances, such treatment is obviously not going to be lastingly effective if, for example, the cause of the eruption on the lids is a continued exposure to a contact allergen (either direct or airborne); or in the axillas if the process is primarily, or has become secondarily, infected with dermatomycosis, or is seborrheic dermatitis; or in the anogenital area if a local cause is allowed to persist, if diabetes is present and uncontrolled, or if infection has not been recognized and properly treated. In any case, it is quite evident that the topical use of hydrocortisone does not lessen the initial need for accurate dermatologic diagnosis; for the ability to recognize the presence of, and the type of, cutaneous infection which may occur primarily or as a complication; or for the knowledge concerning when to stop a treatment which has fulfilled its purpose and what to add when improvement has ceased.

For topical dermatologic application, the choice seems to be a 1 per cent ointment (the 2.5 per cent preparation being more expensive and little, if any, more effective). The useful preparation is hydrocortisone and not cortisone, which is completely ineffective on the skin. One argument against topical use of hydrocortisone is the high cost; another is its failure to control infection.

Systemic Administration

With systemic administration of steroids in dermatology, the usual preparation is cortisone, though hydrocortisone can be used and smaller dosage is effective, and ACTH is available for use by injection in acute emergencies or in instances where the oral drugs have not proved effective. Given systemically, these drugs are effectively anti-pruritic; however, their use is justified only if the physician also takes steps to cure the disease. The drugs do not relieve all types of itching. Their effect probably occurs chiefly by minimizing or preventing the inflammatory reaction which causes the itching, and by preventing the inflammation which results from excoriation.

A. Allergic Dermatoses.—

1. Systemic administration is very effective in relieving acute contact dermatitis when too extensive for topical treatment to be practical and too severe to allow complete dependence on older methods.

2. In chronic contact dermatitis which has gone on to eczematization and is persisting after

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removal of the initial cause, one often gets symptomatic relief from steroid therapy and the older methods, topical or radiotherapeutic, then become more effective in healing.

3. In atopic dermatitis (disseminated neurodermatitis), steroids are helpful as a temporary expedient, but the tendency has been to use the drugs too frequently and in too great dosage. The dermatologist frequently sees patients whose eruptions are worse after the treatment has been discontinued than they were before it was instituted. (In localized atopic dermatitis—localized neurodermatitis—topical administration is preferable to systemic administration and has already been discussed.)

4. Steroid therapy is very useful in relieving the symptoms of exfoliative dermatitis (erythroderma), but during this initial period of improvement one should make every possible attempt to find and eliminate or treat the cause of this disabling condition. In the majority of instances, exfoliative dermatitis is a form of atopic eczema and therefore subject to the suggestions made above. Other forms of eczema are less responsive to steroid therapy, which should not be used in infectious eczematoid dermatitis of either bacterial or mycotic origin. It is of doubtful value in seborrheic dermatitis, at least partly because of the infectious factors which are so often present. It is of little or no value in stasic dermatitis, unless there has been acute generalization of the eruption; such a reaction will subside on steroid therapy, but at the same time one must treat the localized stasic dermatitis and search for and treat its causes.

5. Steroid therapy is often very useful in the allergic reactions to drugs, particularly when these are acutely urticarial or angioneurotic, but also in eczematous reactions to drugs.

6. Urticaria in any form is usually relieved by steroids, if the dosage is sufficiently high. This treatment is indicated only when urticaria is acute and severe. In chronic urticaria, steroids may be worth a short trial, but there are numerous failures to obtain lasting help without undue continuation of therapy.

B. In Certain "Possibly Allergic" Reactions to Infections.—

1. Steroid therapy relieves erythema multiforme, but such treatment is indicated only when the reaction is particularly acute and severe, as in the more toxic, bullous condition which is known as Stevens-Johnson syndrome.

2. Treatment also is quickly effective in erythema nodosum in many instances. However, there is question as to the wisdom of such treatment because one has not treated the cause of the eruption, and the patient thus has false encouragement, not realizing the serious nature of the disease once the dermatologic symptoms have been relieved. It is perhaps better to treat these patients with rest and salicylates while searching for the cause in the usual manner, suspecting drugs and infections of various types, particularly tuberculosis and the rheumatic group.

C. Lupus Erythematosus.—

Neither topical nor systemic administration of steroids is of help in chronic lupus erythematosus. In the otherwise fatal acute disseminated form of lupus erythematosus, we have one of the best indications for steroid therapy in the entire field of medicine. Systemic administration does not lead to cure, but one frequently observes prolonged remissions; only rarely is improvement maintained without continuous or intermittent prolonged administration of the steroids. Subacute lupus erythematosus is difficult to define but, generally, the term is used when the patient is able to be ambulant but manifesting clinical and laboratory evidence of visceral or systemic involvement. In these patients, one hesitates to start steroid therapy because, once started it is extremely difficult to stop without allowing the patient to go rapidly downhill in an acute exacerbation of the disease.

D. Pemphigus.—

Before starting treatment for pemphigus, it is essential that accurate diagnosis be established because other dermatoses can mimic this serious systemic and bullous disease. Steroid therapy is not useful for dermatitis herpetiformis, which may mimic pemphigus, and gives variable results in a bullous condition which is a variant of pemphigus and for which the term "pemphigoid" has recently been gaining popularity. In true pemphigus, the steroids are distinctly not curative but are very helpful and can produce prolonged remissions which in some patients will be main-

(Continued on Page 670)

THE PATHOLOGIST AS A PRACTITIONER OF MEDICINE

Fifty Years of Progress

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DR. ARTHUR H. SANFORD has been for years a prominent influence in my life, as he has been in yours. As a medical student, and later as a resident in pathology, I used a clinical pathology textbook co-authored by Dr. Sanford. When I received my certificate as a Diplomate of the American Board of Pathology, Dr. Sanford's signature appeared on it as the president of the Board, incidentally its first president. I am deeply honored to be chosen to further immortalize his illustrious name, but do not find it easy to rise to this occasion.

The title which I have chosen is in part fact and in part fiction. The fact has to do with the progress of the clinical pathologist as a practitioner of medicine, and the fiction has to do with the reference to the fifty years. This reference is purely journalistic license, but in general, fifty years ago marks the time when the pathologic anatomist emerged from the static atmosphere of the dead-house and from the formalinized interpretation of sections of tissue which in his mind were both physically and philosophically detached from the patient. The studies made by the pathologic anatomist were necessary as a basic foundation, but a superstructure was needed if the living patient was to benefit from these observations; hence, the clinical pathologist was born. These pioneers in clinical pathology realized that there were many discoveries in the allied basic science fields, such as chemistry, anatomy, bacteriology, and physiology, and that a co-ordinator was needed to interpret them and harness their usefulness in order that physicians might practice better medicine. The clinical pathologist, if he is worthy of his name, must have the basic attitude that he is a practitioner of medicine; a physician who uses laboratory tools instead of surgical instruments; a physician who, when he examines the tissue section, thinks of a living patient instead of a histologic problem which he must solve by attaching an appropriate name; a physician who must be able to analyze a patient's history and the significant physical findings in order that he may help his colleagues arrive at a proper diagnosis and treatment by a helpful interpretation of the laboratory findings; a physician who, when he reports the findings at necropsy, must be able to interpret them in the light of chronological development of the disease process and the possible effects, good or bad, produced by the therapy. The static pathologist, the detached recorder of anatomic alteration, is not useful in the daily practice of medicine.

To you, Dr. Sanford, and a few hardy pioneers of your day of approximately fifty years ago, goes the credit for creating this indispensable "tool" in the practice of medicine.

I shall attempt to give you a panoramic sketch of a few of the everyday clinical-pathologic procedures with illustrations of their usefulness. These will be discussed under seven headings, for the purpose of presentation, and not with the idea of defining the scope of the field of clinical pathology.

Pathologic Anatomy

The establishment of hospital standards by the American College of Surgeons included the two most significant steps which were taken in this field to improve patient care—a minimal autopsy percentage of 18 per cent, recently elevated to 25 per cent, and a routine examination of all surgically removed tissues. Out of this grew the widespread use of the biopsy as a diagnostic method, an important weapon in the hands of all physicians in the daily practice of medicine. There are still occasional flurries of controversy about the necessity for routine examination of tissues, but to be convinced one needs only to see a few examples—such as a fibroid uterus which microscopically showed an unsuspected carcinoma of the cervix; a labial ulcer which was removed without being examined histologically and was followed by metastatic squamous cell carcinoma in the inguinal lymph nodes a year later; a "benign" mole which was removed by electro-coagulation without tissue examination and subsequently appeared in the regional lymph nodes as a metastatic melanoma. These and numerous other

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examples adequately demonstrate the need for routine microscopic examination of all surgically removed tissues. Patients are becoming more aware of the necessity of this procedure.

With the advent of the Tissue Committee, created by the Joint Commission on Accreditation of Hospitals, new controversies have arisen. These are based largely upon the attitude of many surgeons who feel that they are the objects of discriminatory surveillance, whereas their clinical colleagues, such as internists and pediatricians, go relatively scot-free. The controversy, of course, is understandable, but a properly functioning Medical Records Committee should go far in minimizing this difference.

The smear technique for the examination of body fluids and secretions, re-emphasized by Dr. Papanicolaou, has become a very useful tool, but its scope of usefulness is narrower than was hoped for. In general, the Papanicolaou technique is most useful in the early diagnosis of carcinoma of the cervix, carcinoma of the bronchus, and the examination of fluids from serous cavities. One is occasionally forced to treat a suspected carcinoma of the bronchus without either a positive Papanicolaou smear or a positive biopsy. This should never be done in the case of the cervical disease. A positive cervical Papanicolaou smear should always be followed by a biopsy before therapy is commenced. The cell block technique is more valuable than the Papanicolaou method for the examination of fluid from serous cavities. This consists of the formalin fixation of the centrifuged concentrated sediment followed by the preparation of the microscopic slide by the ordinary paraffin technique. More accurate results are obtained than by the smear method. We have had similar experience with bronchial secretion, when a sufficient quantity is present.

Aspiration biopsy by a Silverman type of needle has become an important diagnostic method, particularly applicable to areas where direct biopsy is difficult to obtain. Liver biopsies by this method are not at all difficult. They are usually done, however, only in those cases where there is an enlargement of the liver and no evidence of bleeding tendency. Successful biopsies of this type have also been made of deep-seated bone lesions, the spleen, and the lung. Usually the biopsy of a breast lesion by this method is not indicated, especially when the entire lesion may be excised.

Hematology

Of the numerous discoveries that have been made and have eventually been adopted as useful in this field, perhaps the bone marrow examination is the most important. One can hardly think of a disease problem involving the hematopoietic or the reticulo-endothelial system without also thinking in terms of the bone marrow findings. All leukemias, except chronic granulocytic leukemias, can be diagnosed much earlier and more accurately by bone marrow examination. This is particularly true in children, in whom many begin as leukopenias and present a clinical picture of some type of infectious disease. A marrow examination may be absolutely essential in some cases of infectious mononucleosis in order to avoid the horrible mistake of making an incorrect diagnosis of leukemia. All of the lipid and non-lipid reticulo-endothelial diseases, such as Hand-Schuller-Christian disease, Niemann-Pick Letterer-Siwe, and Gaucher's disease, are often first diagnosed by marrow examination.

The technique is relatively simple. Although some people prefer the iliac crest or the spinous process of the vertebra as a site, I still prefer the sternum, even in children. It requires a sternal needle and a large syringe, preferably 20 cc., and a sudden, sharp aspiration which creates sufficient vacuum to break down the marrow trabeculae in order to obtain marrow tissue; otherwise, venous blood is obtained. Local anesthesia is all that is necessary, even in most children.

In recent years, a very important new concept of hematology has been advanced, that is, the concept of hypersplenism. It has been known for many years that some patients suffering from thrombocytopenic purpura were benefited by splenectomy, but there was no method of determining which patients would benefit and which might not benefit by this procedure. In the case of thrombocytopenic purpura, the bone marrow examination is essential in the differentiation of the primary from the secondary type. In primary thrombocytopenic purpura the spleen is not enlarged.

Other types of hypersplenism are generally associated with the secondary effects of splenomegaly. In this condition, any or all of the formed marrow-derived elements of the periph-

eral blood may be decreased in numbers. It is not known whether the reduction is the result of the hyperactive destructive action of the spleen, the production of some hormone which depresses the ability of the bone marrow to release a sufficient number of elements, or an increased antibody formation in the spleen, which in turn may destroy platelets, red cells, or even white cells. Nevertheless, in each patient in whom this problem exists—that is, an enlarged spleen and peripheral blood evidence of a partial or a pancytopenia . . . a marrow examination is essential to determine whether the disease is or is not primarily one of marrow origin. If marrow elements are present in adequate numbers, many of these cases are benefited by splenectomy; if not, splenectomy might be fatal because the spleen may be the remaining major manufacturing plant for hematopoietic elements.

The hemophiliac can now live a much more comfortable existence; although his disease cannot be cured, it at least may be controlled. The discovery of the lack of hemophiliac globulin, that is the anti-thromboplastinogen, and its correction by the administration of freshly drawn blood has saved many a hemophiliac's life. This hemophiliac factor is a highly labile factor which soon disappears from bank blood. The same result may be accomplished by the administration of this specific globulin fraction of frozen plasma but fresh blood is often more readily available.

The L. E. cell, the diagnostic cell of disseminated lupus erythematosus, was first found in incubated, heparinized bone marrow. The demonstration of this phenomenon is now simplified by the thirty-minute incubation of whole venous blood, straining the cloth through a 40-mesh screen, centrifugalization of the fibrin free blood suspension, and staining the smears made from the buffy coat. This method is just as accurate as the marrow method.

Parasitology

Many advances have been made in this field, but compared with others, their application is limited in the daily practice of medicine in the temperate zone. Perhaps the most important is amebiasis. This was forcibly called to our attention as a non-tropical disease when faulty plumbing got the sewage mixed up with the drinking water in a rather well-known hotel and in addition, a few carriers contaminated the salads. This incident made us all aware that amebiasis may be seen anywhere, temperate or tropical, and we must be prepared to detect it in the laboratory. Unfortunately, the methods are not as good as desirable. The fact that parasitologists agree that at least three stools must be examined for cysts and vegetative forms before they can be called negative, is an indication that our present methods are far from good. The value of the complement fixation test has not been established.

During World War II, we in the temperate zones observed some hookworm and malarial infections that had little chance for survival because the natural surroundings are not conducive to the propagation of these diseases. The little, old, itchy pinworm, however, is a perennial problem. Among children between the ages of five and fifteen, the infection rate is between 25 and 50 per cent. Stool examinations, of course, are of no value because the female deposits her ova on the perianal perineum. The scotch tape method of picking up the ova from the early morning, unwashed perianal region is still the best method.

Clinical Chemistry

No vast improvements have been made in the routine examination of gastric juice, urine, or feces. Perhaps the most useful is the development of the test tablets for the detection of sugar and acetone in the urine and for blood in the stools. These go far to simplify the procedures in the doctor's office. The tablet for the detection of blood in the stool is of great value because it usually does not require that the patient be on a meat-free diet prior to the test.

Physiological Chemistry

For practical purposes, the field of applied physiological chemistry was born and raised during the last fifty years. It probably has not reached puberty. I shall only mention a few procedures, most of them are so well established that they need no comment.

The prothrombin time at first found its application in hemorrhagic disease of the newborn, in which it is prolonged during the first ten days of life. It has become a necessary daily procedure in all laboratories because dicumarol is now widely used in an attempt to prevent thromboembolic processes, particularly in coronary heart diseases. It is also extremely useful in the bleeding problem of obstructive jaundice.

The chemical tests for the determination of liver function are still in their infancy. A battery of tests, such as the direct and indirect VandenBergh, the thymol turbidity, the cephalin flocculation, the bromsulphalein excretion tests, the prothrombin time, the test for bile in the urine, urobilinogen studies, the total serum protein and A-G ratio, alkaline phosphatase, and blood cholesterol are collectively often referred to as a liver profile. When properly interpreted in the light of the clinical findings, this has taken much of the guesswork out of the cause of the individual case of jaundice. Many people whose jaundice is due to an infectious hepatitis may have an accurate diagnosis and consequently not be subjected to an unnecessary, hazardous, exploratory operation.

A total serum protein determination is also extremely helpful in older patients who are subjected to extensive surgery. A low level of total serum protein, as well as the abnormal ratio of albumin to globulin, reflects a lack of adequate general resistance of the body because we know that the formation of immune bodies and other defense mechanisms are intimately associated with adequate available protein.

In cardiac, renal, intestinal, pulmonary, and adrenocortical diseases and in pre- and postoperative surgical problems, especially of the gastrointestinal and biliary tracts, the electrolyte, acid-base, and water balance can now be properly assayed through the use of the carbon dioxide combining power, the plasma chlorides, the blood sodium and potassium. The designation of the quantitative level of these chemicals in milliequivalents instead of milligrams per cent aids materially in the understanding and the solution of an acid-base problem. This is based upon the fact that the chemical substances of the blood which maintain a normal acid-base balance do not react with each other gram for gram, but in proportion to their equivalent atomic weights.

The determination of urinary ketosteroids has been important in removing the mystery surrounding many of the endocrine problems, particularly as they relate to the hypophysial, adrenal, and gonadal disturbances.

Serology

About the turn of the century, it was discovered that serum from immune animals destroyed the bacteria to which they were immune. The application of this principle as an aid in the prevention or diagnosis and/or treatment of such diseases as typhoid fever, shigellosis, tularemia, brucellosis, syphilis, and many others, has made it possible virtually to eliminate them as public hazards. Syphilis, a disease in which the only carrier is the human, has also been virtually conquered in this country by vigorous widespread application of case-finding methods and through the use of serological tests. It seems a tragedy that another widespread, largely human-borne disease, tuberculosis, has not also been eliminated since it may be easily diagnosed through a combination of an immunologic principle, the tuberculin test, and the x-ray.

Many viral diseases can now be detected through the medium of serologic tests, but these tests are not yet generally available.

Lansteiner's discovery, about fifty years ago, of the non-bacterial antibody, the iso-agglutinin, was the next important milestone in this field of applied immunology. This led directly to the discovery of the naturally occurring blood group and antibody systems which are now known as the ABO system, the M & N system, and the Rh and Hr system. Evidence has recently been discovered that we also have a platelet group system. From a practical standpoint, of course, this discovery permitted the use of blood transfusions as proper therapy for many diseases characterized by blood loss, and it also permitted extensive surgical procedures because sufficient quantities of blood could be safely administered to a patient. The discovery that a pregnant Rh negative mother could be iso-immunized by her Rh positive fetus explained a complicated, baffling disease which was known then as erythroblastosis fetalis, now called hemolytic disease of the newborn. In fact, the hemolytic action of the maternal anti-Rh positive antibodies upon the red cells of the fetus was found to be responsible for four apparently different disease processes: erythroblastosis fetalis, icterus gravis neonatorum, fetal hydrops, and purpura of the newborn. A prenatal work-up is no longer complete unless Rh blood grouping of the pregnant woman and her spouse is done. Detection of the Rh antibodies in the maternal circulation during the pregnancy is a warning that preparation should be made for a replacement transfusion at the time of birth. Fortunately, the Rh antigen is a very poor antigen and only iso-immunizes the Rh negative mother suffi-

ciently to cause the fetal disease in about one of fifty pregnancies.

Soon after the Rh iso-immunization phenomenon was discovered, it was found that there were two types of antibodies in the serum—an agglutinating bivalent antibody which was easily detected *in vitro* because it clumped the Rh positive red blood cells in saline dilution, and another one, the univalent blocking antibody, which coated the red blood cells but did not cause them to clump in a saline dilution. A simple method had to be developed to detect the presence of this blocking antibody.

Based upon the fact than an antibody is basically globulin, Coombs and his associates developed an anti-globulin immune serum which caused clumping of those red cells which were coated with blocking antibodies. This principle is being applied to many other iso-immunization problems, particularly in acquired hemolytic anemias in which it has been discovered that many such patients show red cells coated with blocking antibodies. This is not true of the congenital spherocytic form of hemolytic anemia.

The principle of the Coombs' test will probably be used in the development of laboratory methods for the detection of auto-immunization which is the production of immune bodies in response to an antigen that normally exists within the human body. This is in contrast to iso-immunization when a foreign antigen is introduced as in the case of an Rh positive antigen into an Rh negative recipient. The hemolytic process where cold agglutinins clump the patient's own red cells is an example of auto-immunization. It is felt by several investigators that there are immune bodies in some cases of thrombocytopenic purpura which actively destroy the blood platelets. A practical test has not been developed to separate those purpuras in which an immune body is operative.

An important auto-immunization mechanism probably is involved in the so-called collagen diseases: disseminated lupus erythematosus, periarteritis nodosa, rheumatoid arthritis, rheumatic fever and glomerulonephritis. The L. E. phenomenon in lupus erythematosus, with nuclear substances phagocytosed by the patient's leukocytes, may be an example of auto-immunization. A disease resembling human glomerulonephritis has been produced experimentally in rabbits by injecting anti-rabbit kidney immune serum.

Medical Microbiology

No clinical pathology laboratory today can exist without a vigorous medical microbiology division. Dr. Alexander Fleming's accidental discovery in his microbiologic laboratory resulted in the greatest medical benefit to mankind during the last fifty years. Following his notation that some bacteria would not grow on artificial media in the immediate zone about the colony of a common contaminating mold, *Penicillium notatum*, the story of the development of antibiotics is unbelievably fantastic. The clinical pathology laboratory, by the use of sensitivity tests, aids the physician in the selection of the proper antibiotic. These have proved very helpful despite the fact that for some time there was doubt whether the *in vitro* demonstration of sensitivity was applicable *in vivo*.

Improved routine laboratory methods have helped immeasurably in the study of fungus diseases. Perhaps the most practical help can be obtained by the isolation of the fungus responsible for a given case of dermatomycosis. The discovery that there is a vast reservoir of *Coccidiodes immitis* organisms on natural vegetation and a *Histoplasma capsulatum* reservoir in animals was highly significant. Skin sensitivity tests for both of these diseases have revealed that there are many non-fatal subclinical cases similar, in that respect, to tuberculosis.

The diagnosis of viral disease by routine laboratory methods is not yet at hand. The need for extensive animal innoculations, ultra and refrigerated centrifuges, electronic microscopy, and highly technical filtrations makes it impossible for the laboratory of the average clinical pathologist to be useful in this field.

Conclusion

If I have succeeded in creating in you a feeling that the laboratory is another facet in the practice of medicine and not merely some remote, busy, isolated group of rooms where urine is being boiled, blood is being examined, and tissues are being cut, all in an air of total detachment from the problems of the patient, then the purpose of this talk has been accomplished. That would be a most fitting tribute to Dr. Arthur H. Sanford, physician, scholar, scientist, investigator, author, and gentleman.

CANCER OF THE CERVIX

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A BASIC concept in cancer is that the key to better results is earlier diagnosis, and more prompt and adequate treatments. Programs of lay and medical education have made significant gains upon the objective of diagnosis despite the fact we have only a few tools that aid in early recognition. For cervical cancer the Shiller test, in use for a period of approximately thirty years, was the first important development. More recent is the use of smears for examining vaginal secretions microscopically. As a result, there is now improvement in quality of clinical material. There is also advance in technique of treatment.

If to some the speed of advance seems slow, they need be reminded that our predecessors included competent surgeons and diagnosticians, and that empiricism derived from trial and error in radiotherapy forms the basis for greater precision in modern treatment.

We have not equally improved estimation of prognosis. To be sure, the early case presents a better outlook than more advanced forms, but knowledge remains vague for explaining failure in a favorable lesion, or success in a late growth. Error in estimating stage of advance might be suspected as a significant factor. Accessibility of normal pathways of growth to palpation makes practical the classification of cervical cancer into different stages of advance, but error is inescapable due to difficulty in recognizing small extensions or dispersions, and to confusion in distinguishing induration of tumor from that due to infection. Henriksen estimates error to be on the order of 25 per cent. That magnitude is of significance, but in considering the broad spectrum of induration in question, it does not explain adequately the inaccuracies in estimating prognosis.

In pursuit of the question, it is pertinent to examine results in two independent series of patients treated by a medical staff that is essentially overlapping. During the years 1935-1947, a total of 452 ward and private patients with cervical cancer were treated at the Barnes Hospital, and 990 patients at the Barnard Free Skin and Cancer Hospital. Results are given in Table I. It can be seen that the total five-year survival free of recurrence is 30 per cent, but the value for Barnes is 40.5 per cent, and that for Barnard only 25.1 per cent. Since the majority of individuals responsible for treatment are staff members at both hospitals, there must be intrinsic reasons for the wide difference in end results.

TABLE I. FIVE-YEAR RESULTS IN CERVICAL CANCER TREATED AT THE BARNES AND AT THE BARNARD HOSPITALS

Hospital	Number of Patients	Alive and well at 5 years	
		Number	Per Cent
Barnes	452	183	40.5
Barnard	990	249	25.1
Total	1442	432	30.0

The International Classification is employed for both series. Results according to stage of advance for the Barnes patients are given in Table II. Four patients with intra-epithelial cancer are included in Stage I. Five-year values for each stage are in good agreement with those generally reported, with the exception of Stage IV in which no survivals are shown. That is believed largely due to conservative classification. Patients have not regularly been cystoscoped or proctoscoped. Qualification for Stage IV has been evidence of extension outside the birth canal as noted biman-

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ually, radiographically, or on general physical examination.

Infection is known to affect adversely the response to irradiation. The attempt has been made to evaluate the effects of infection upon results in the Barnes patients, and those data are given in Table III. Lesions were classed as infected if mention of that complication was made in the clinical record, or if there was an appreciable amount of fever during hospitalization for radium treatment. For the entire series only thirty-five (20.6 per cent) of the 170 infected patients survived five years free of recurrence. For each stage the values fall below the average for the group in question. Thus, it appears evident that infection affects prognosis. A substantial segment of the patients were treated during a period antedating modern antibiotics. It is possible that future statistics will show a lesser effect for infection.

Relationship has been demonstrated for gross architecture of tumor and end results. Primary lesions can be classified into everting, infiltrating, and cratered forms. The everting, or exophytic type, is the typical cauliflower growth composed of numerous papillary excresences with marked friability and a rich blood supply. Infiltrating forms expand the cervix by growth beneath a more or less intact covering epithelium, and produce a firm, hard, nodular type of lesion. Those often begin as endocervical growths, and in more advanced stages present a hard collar of tumor replacing the cervix and filling all vaginal fornices. Catered lesions are formed as the result of tissue loss due to slough following necrosis. They are severely infected, and tend usually to be the more advanced forms of everting types. Results according to clinical type of growth are given for the Barnes series in Table IV. In recalling that the average five-year result for the entire series is 40.5 per cent, it can be seen that values for specified gross forms are 54.4 per cent for everting lesions, 39.1 per cent for infiltrating tumors, and 21.1 per cent for cratered varieties. In the same table, values are given for each stage. In each instance, the everting tumors present a result better than average for the stage in question. Other forms tend to fall below average.

TABLE II. FIVE-YEAR RESULTS IN THE BARNES SERIES ACCORDING TO STAGE OF ADVANCE

(International Classification)

League of Nations Classification	Number of Patients	Alive and well at 5 years Number	Per Cent
I (20 per cent)	90	64	71.1
II (46.3 per cent)	209	98	47.3
III (26.2 per cent)	119	21	17.6
IV (7.5 per cent)	34	0	0
	452	183	40.5

TABLE III. FIVE-YEAR RESULTS IN THE BARNES SERIES ACCORDING TO INFECTION

Patients	Per Cent Alive and Well at 5 Years League of Nations Classification							
	I		II		III		IV	
Total Series 183/452	64/90	71.1	98/209	47.3	21/119	17.6	0/34	0
Infected in Total Series 35/170	7/13	53.8	22/71	31	6/62	9.7	0/24	0

There is evidence, therefore, that character of growth pursued by the tumor has certain relationship to end results. It is possible that variation in clinical response may be due in part to differences in tendency toward spread by direct extension or by dispersion. Marked infection of cratered forms must have some bearing upon lesser results in these lesions.

TABLE IV. FIVE-YEAR RESULTS IN THE BARNES SERIES ACCORDING TO CLINICAL TYPE OF GROWTH

Clinical Type	Per Cent Alive and Well at 5 Years League of Nations Classification I		II		III		IV		Total	
Everting	27/37	73	37/69	53.6	4/17	23.5	0/2	0	68/125	54.4
Infiltrating	23/34	67.6	38/87	43.7	13/54	24.0	0/14	0	74/189	39.1
Cratered	4/9	44.4	13/38	34.2	2/31	6.4	0/12	0	19/90	21.1
Unclassified	10/10	100	10/15	66.6	2/17	11.8	0/6	0	22/48	46.0
Total	64/90	71.1	98/209	47.3	21/119	17.6	0/34	0	183/452	40.5

TABLE V. AVERAGE FIVE-YEAR RESULTS IN BARNES AND BARNARD SERIES ACCORDING TO CLINICAL TYPE OF GROWTH AND INFECTION

Hospital	Per Cent Alive and Well at 5 Years Everting	Infiltrating	Cratered	Unclassified	Infected
Barnes	54.4	39.1	21.1	46.0	20.6
Barnard	22.5	20.0	22.0	48.0	9.0

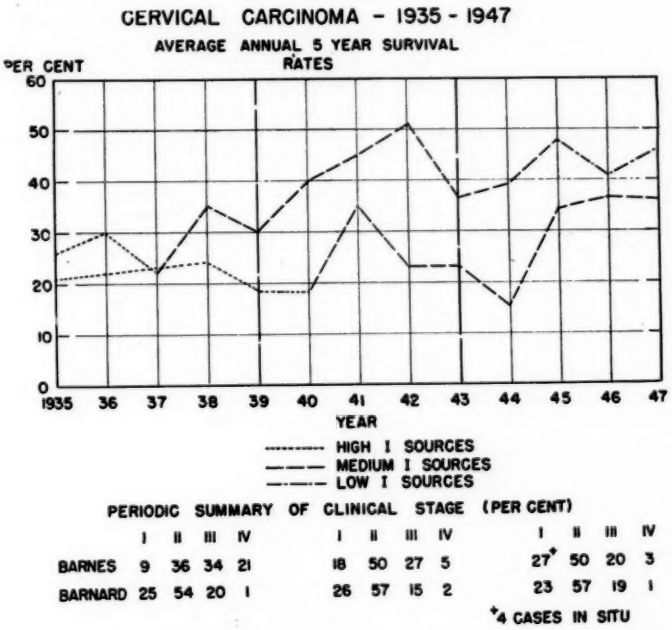
Upon accumulation of data given above for the Barnes series showing the better average result, it becomes pertinent to make comparison with the Barnard patients. Those data are given in Table V. It can be seen that effect of gross architecture is obliterated in the Barnard series. Values for everting, infiltrating, and cratered forms are not significantly different from the average survival rate of 25.1 per cent for the entire series. That is not found true for infection. Fall in survival for infected lesions is greater in the Barnard patients, the value being only about one-third that for the total group. In the Barnes series, the value for infected lesions is one-half the average. Explanation for those phenomena is vague, but it seems probable that factors were present that decreased resistance to infection in the Barnard patients, and that those, or other factors, obliterated significance of gross architecture.

It now becomes important to compare over the period in question any fluctuations in yearly survival, differences in treatment, or alterations in type of material for the two series of patients. Those data can best be presented by the graph shown in Figure 1. Yearly survival curves are drawn in dots, dashes, and a combination of the two. Progression in that order respresents successive decreases in intensity of radium treatment. At the outset, strengths were usually 25 mg. and 50 mg. In more recent years, tubes of about 5 mg. and 10 mg. have been used.

The yearly survival curve for each series shows gradual improvement. In the early years, the curves are in close agreement. The first important rise for the Barnes curve occurs after 1937, which coincides with the first decrease in intensity of radium tubes. After 1945, there was another decrease in intensity of radium treatment, but that is not accompanied by any significant change in results during the particular years in study. The Barnard curve shows improvement after 1940, which coincides with a change in method of radium treatment at that institution. Both curves show a temporary fall during the war years.

The final comparison to be attempted here is upon the basis of clinical material. Distribution

into the various stages of advance is shown for each four-year period. The Barnes material has become progressively more favorable, but quality of the Barnard material has remained almost constant. It may be that there has been tendency toward "over-classification" at Barnard due to infection, and it is possible that educational programs have been less effective among indigent classes of peoples.



PERIODIC SUMMARY OF CLINICAL STAGE (PER CENT)

	I	II	III	IV	I	II	III	IV	I	II	III	IV
BARNES	9	36	34	21	18	50	27	5	27*	50	20	3
BARNARD	25	54	20	1	26	57	15	2	23	57	19	1

*4 CASES IN SITU

Fig. 1. Curves showing yearly survival rate in Barnes and Barnard series. Intensity of radium sources used in treatment is shown for different periods. Distribution of patients into different stages of advance is shown for each four-year period in question.

No definite explanations can be made for differences in clinical results at the two institutions. It should be noted that a more favorable material has prevailed in the Barnes series. At that institution, there was an earlier attempt to modify treatment by use of lower intensity sources of radium. It is possible that nutritional and hygienic factors are important. Detrimental effects of infection are more marked in the Barnard patients. For some reason, it has not been possible to demonstrate in those patients a relationship between gross architecture and end results, which is so clearly shown in the Barnes series. For individual prognosis, one must evaluate stage of advance, gross architecture, infection, and method of treatment. To those should be added nutritional state. The patient to be treated surgically is adequately prepared before operation and supported during recovery. In most instances, nutrition is given little attention during irradiation. Adequate support for those patients should result in further advance in survival rates. It is not unsound to postulate that tumor control by irradiation is accomplished through effects upon normal tissues supporting the neoplasm, as well as by more direct effects upon the lesion. In that instance, the health of host tissues must be important.

In final analysis, we are still without detailed knowledge upon tumor regression and prognosis. The most reliable criterion for estimating curability is spread of tumor. That has been illustrated many times in survival statistics given in relation to proven lymph node involvement. Those data are available only in patients treated by radical hysterectomy, or in those subjected to iliac lymphadenectomy in conjunction with ir-

radiation. The latter procedure has been performed in 176 patients, and radical hysterectomy in seventy-seven individuals. Most of those patients are in the Barnard series. Results from those procedures are given in Table VI. Among the 253 patients in whom lymph node data are available, there are fifty-five with positive nodes, and 198 with negative nodes. In the positive group, five-year survival is 10.9 per cent, but for the negative group, the value is 52 per cent. Thus, the presence or absence of lymphatic dispersion becomes the most significant factor in determining prognosis. Those data are not available in patients treated by irradiation alone.

TABLE VI. INCIDENCE OF POSITIVE NODES AND SURVIVAL RATE IN 253 PATIENTS TREATED ENTIRELY OR IN PART BY SURGERY

LYMPH NODE INVOLVEMENT

Iliac Lymphadenectomy 176 patients*
Radical Hysterectomy 77 patients*

International Classification
Stages I and II

Lymph Nodes	Number of Patients	Per Cent Total	Five-Year Survival Number	Five-Year Survival Percent
Positive	55	21.7	6	10.9
Negative	198	78.3	103	52
Total	253	100.0	109	42.8

*Various amounts of pre-operative irradiation were employed in a large percentage of patients.

The question as to whether or not lymph-node dispersion can be controlled by irradiation has been extensively discussed without final decision. Presumably, an occasional patient may gain control, but only infrequently will the quantity of radiation arriving at the lateral pelvis be adequate for that effect. It should be noted also that with surgical removal the survival is low among patients with proven node dispersions.

Control of lymphatic spread is the focal point of interest in the treatment of cervical cancer. The paracervical and parametrial injection of radioactive gold presents a new technique with that aim. At the Washington University, the work has been performed by Dr. Allen and Dr. Sherman. They have demonstrated that the material has the affinity to be picked up by lymphatics and transported to regional nodes with promptness that permits arrival at those points with considerable residual radioactivity. They have shown that metastases will not necessarily block passage of the material into involved nodes. They have demonstrated histologic alterations in lymph node cancer that appear microscopically identical to changes following more conventional forms of irradiation. More recently, in collaboration with Dr. Ter Pergossian, they have attempted to arrive at specification of dose comparable to expressions that can be given for x-rays and radium. It cannot be stated that lymph node dispersions are controlled by radioactive gold, but the clinical results noted so far are impressive. During the four years that gold has been employed in selected cases upon the ward service at Barnes Hospital, the current survival free of recognized recurrence in the total ward service is greater than upon the private service. In all previous experience, the private series has invariably shown the better result.

SURGICAL OPERATION IN IDIOPATHIC ULCERATIVE COLITIS

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ONE CANNOT long deal with such a disease as idiopathic ulcerative colitis without wondering whether it is not a group of diseases, at present classified as one. Several of the factors thought to be of etiological importance are usually recognizable in each individual case. The result seems to be that no one of us can provide a consistently or even occasionally specific curative therapy.

When we left Minnesota to go to New York three years ago, we reviewed those cases seen at the University of Minnesota Hospitals from 1934 to 1951 and at Minneapolis General Hospital from 1947 to 1951.[5] There were 267 such cases, most of which were either advanced or very acute. An evaluation of these was undertaken to learn if possible the fate of those handled primarily by conservative as opposed to those handled by operative means. Of that group treated without operation, or with operation deferred until undertaken as an acute emergency, only 29 per cent of those followed were alive in 1951, and only 27 per cent of these survivors were free of symptoms. Of that group treated with the aid of surgical intervention, 80 per cent of those followed were alive in 1951 and all but 9 per cent were active and well.

The factors responsible for death in these patients were varied. Surgical mortality was high early but very low later in the combined experience, which included that of W. T. Peyton, O. H. Wangensteen, J. R. Paine, and others.

Cancer as Cause of Late Death

The chief lethal factor, in addition to colitis proper and surgical misfortunes, was cancer development. As previously reported, this study indicates that those who retain colons with a ten-year history of colitis developed this complication in 10 per cent of the series. It has been the ill fortune of one of us to deal with sixteen such cases, and two more of the entire series have developed cancer of the colon since 1951. This is an experience in keeping with that of Dukes and Brooke[2] and of Cattell,[3] who found a cancer incidence above 30 per cent in cases of long duration.

Perhaps the most pathetic aspect of cancer in late colitis is that the symptoms which usually call attention to cancer of the colon, namely, alternating diarrhea and constipation, melena, weight loss, abdominal cramps, malaise, et cetera, are already familiar to the patient and of long standing. The warning symptoms are, therefore, rarely appreciated until the situation is far advanced. The diagnostic signs are similarly misleading, in particular the roentgen studies, for the fibrosis of late colitis can obscure completely the signs of carcinoma. Finally, the cancer which complicates colitis is commonly more malignant than that seen in the absence of colitic disease. Of the entire group of sixteen cancers in this category which we have seen and of the two in the study group to develop cancer since 1951, only one was alive at last report.

Types of Surgical Intervention

Vagotomy.—In 1947, Franklin Eddy and one of us undertook to evaluate the part which vagotomy might play in the management of ulcerative colitis, a maneuver suggested to us by C. J. Watson. Our initial results were most encouraging, and therefore this procedure was utilized in a series of forty-two patients who were carefully followed by an enlarged study group over several years. Careful study of the records suggests that the best responses occurred in those cases without appreciable fibrosis of the colon, without massive hemorrhage, and without extremely extensive ulceration.[4,6] The problems of gastric retention occurred in more than 10 per cent of these cases, and it seemed desirable to perform a parasympathetic block which might be removed when desired. The introduction of banthine by Grimson has accomplished this end, and only rarely is operative vagotomy employed now. It is essential apparently to give the drug every four hours day and night in dosage sufficient just slightly to impair ocular accommodation.

Ileostomy.—Ileostomy without simultaneous colectomy should be abandoned in the care of

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colitis. The thesis that the colon may heal sufficiently to permit closure of the ileostomy has been discredited, for fewer than ten patients so closed without trouble can be found in the literature. Furthermore, the mortality of ileostomy alone, except in meticulously selected cases, ranges upward from 10 per cent. Finally, the natural reluctance of patients in the series from the University of Minnesota to accept colectomy after effective ileostomy, and the early reluctance of the staff to advise it, were rewarded by a further 10 per cent loss of patients.[5]

Primary Colectomy.—Several years ago, Wangensteen and Toon[8] reported striking improvement in mortality figures pursuant to removal of the colon as well as ileostomy at the initial operative intervention. A few months later similar results were published by Miller and Ripstein.[7] Accumulation of the data of the University of Minnesota, Miller and Ripstein, and us, indicates the risk to be somewhere between 2 and 5 per cent for the larger operation, but a fraction of that of ileostomy alone. It appears that postoperative complications and fluid losses are vastly reduced by removal of this huge bed of infected, ulcerated bowel.

Characteristics of a Good Ileostomy.—There is no more distressing mishap for the colitic patient than the creation of a poor ileostomy. Cutaneous excoriation, ascending enteritis, a stenotic orifice, fistula formation, prolapse, retraction, and herniation are all nearly always outgrowths of poor surgical management, and these are precisely the developments which have led so many internists to defer operation until the last possible moment.

There are certain components to the construction of a good ileostomy which need repeated emphasis.

1. *Choice of site and incision.*—The ileostomy will of necessity be single barrelled if primary colectomy is performed. It should never be made in the main incision, for skin to skin closure tolerates the discharge poorly; the area in addition is usually depressed after a few months, making the use of an adhesive bag unsatisfactory. A circular incision an inch in diameter through all layers of the abdominal wall serves admirably.

The ileostomy is preferably placed in the beltline and close to the midline, well away from bony prominences and the crease of the groin. Loosening of the bag on exercise is thereby minimized.

2. *Use of healthy ileum.*—Approximately one-third of patients studied were found to have involvement of the small intestine to a greater or less degree. Recognition of such involvement upon gross inspection of either the serosal or the mucosal surface has proven less satisfactory than utilization of the rapid frozen section method. Use of ileum at the bottom end of normal bowel leads to a more secure ileostomy with minimal excoriation and with semi-formed stool.

3. *Attachment to abdominal wall.*—Secure attachment of the ileum and mesentery to the posterior rectus sheath and peritoneum is essential to prevention of herniation beside the ileum through the abdominal wall, without which prolapse does not occur. Use of fine silk (#0000) placed so as not to include mucosa and so as not to cause strangulation of tissue is apparently effective in avoidance of fistula formation. The authors have had no fistulas in association with use of such sutures.

4. *Formation of mesenteric diaphragm.*—Torsion of other segments of bowel about the loop attached to the anterior abdominal wall for ileostomy is a real risk, but one easily avoided by fashioning a diaphragm of the mesentery of resected terminal ileum or ascending colon to close off the space from terminal ileum to anterior, lateral, and posterior abdominal walls to the right of the ileostomy.

5. *Skin attachment.*—Attachment of the margin of the one inch circular incision to the bowel as it passes through not only hastens healing, but permits assurance of some slack ileum in the fatty layers. The latter measure forestalls the later funnelling of skin down to the mucocutaneous junction, a complication which can make comfortable ileostomy care impossible and muco-cutaneous stenosis a virtual certainty.

6. *Coverage of projecting stoma.*—Brooke has suggested eversion of the projecting ileum, bringing the cut edge back to the circular skin margin, where it is sutured in place.[1] A well-covered ileostomy is thus fashioned at once, and a very soft and pliable stoma results. This method appears to surpass in simplicity and freedom from

complications either the use of split thickness skin grafts or mucosal grafts.

Conservative Proctectomy.—Rectal excision as for the Miles operation is commonly followed by sexual crippling through injury to the pelvic parasympathetic outflow. In colitis such radical resection leaves a huge hole which heals more slowly than when the resection is performed in the absence of colitis. For these reasons, those proctectomies performed for colitis (after proctoscopic evidence of freedom from cancer) are best accomplished by dissection immediately adjacent to the rectal wall. In the authors' series, there is no instance of impotency, and primary closure and smooth healing are usually possible.

Indications for Operation

Operative intervention should regularly consist of primary subtotal or pan-colectomy. The indications recommended are:

1. Fulminating colitis which fails to respond within days to good medical management.
2. Acute colitis which cannot be brought under control within a month of onset.
3. Colitis which advances the degree of damage and fibrosis to a stage in which malignant degeneration would be difficult to recognize.
4. Chronic colitis of more than three to five years' duration.
5. Colitis with complications of serious or uncontrollable nature:
   - (a.) Perforation
   - (b.) Carcinomatous degeneration, proved or suspected
   - (c.) Cirrhosis of the liver
   - (d.) Secondary arthritis
   - (e.) Secondary pyoderma

Prognosis After Colectomy

With primary colectomy, as indicated above, the initial risk is apparently lower than with other surgical maneuvers. In addition, the subsequent outlook is very gratifying. Of seventy-eight cases followed in Minnesota and ten in New York for periods up to ten years after dismissal from the hospital following colectomy and ileostomy, there have been three deaths from metastatic cancer of the colon and one of lymphatic leukemia. As of last record, all others are alive. Of those alive, all but seven are in good health. Several of the women have had children since operation, all without complications or mortality.

These figures are in striking contrast to the staggering mortality in the group not undergoing operation of any kind, in which over one-third had died within five years of first observation.

Conclusions

1. It is possible that many cases of idiopathic ulcerative colitis can be successfully handled on a long-term basis by non-surgical means.
2. Vagotomy appears usually to be helpful in carefully selected cases of colitis, but the use of banthine usually makes this operation unnecessary.
3. The risk of cancer development in these colons late in the disease is immensely greater than the risk of primary colectomy and ileostomy.
4. Satisfactory ileostomy results only with careful attention to precise details.

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LIVER BIOPSY: A NECROPSY STUDY

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BIOPSY of the liver as an aid in the diagnosis and study of hepatic disease has become an established procedure. Although Iversen and Roholm were not the first to utilize biopsy of the liver, it was their report in 1939 that gave the impetus to the present widespread use of this procedure. Since their report, a multitude of papers have attested to the value of this technique in the diagnosis and study of a wide variety of hepatic diseases.

At the time the present study was proposed, no detailed investigation had been reported concerning attempts to correlate histologic sections obtained at hepatic biopsy with sections of the liver made at necropsy. Consequently, it was decided to compare material obtained from the liver shortly after death by means of biopsy techniques with regular pathologic sections made at necropsy. Since this study was begun, a number of investigations were reported that were similar in some respects to this work. Waldstein and Szanto took ten specimens per liver from the livers of fifteen cadavers; four of these livers were normal, two showed toxic hepatitis and nine were affected with cirrhosis. They noted agreement in the various sections from each liver with regard to the amount of injury to hepatic cells and fatty changes. Dissimilarity appeared in 10 per cent of the 150 specimens with regard to alteration of lobular pattern, scarring in portal or central zones, inflammation of the peripheral zone and portal areas, and leukocytic reaction. Giesen and associates correlated material obtained at punch biopsy of the liver with that found at necropsy. They found the over-all correlation to be excellent in forty-five of forty-eight cases. Twenty-three of twenty-six focal lesions, all of which were metastatic malignant tumors, correlated perfectly. The correlation was perfect in all of twenty-two cases in which diffuse hepatic disease was present. Wagoner and co-workers compared results of study of ninety-seven specimens of hepatic tissue obtained by needle biopsy in eighty-six patients with findings at necropsy. Specimens were obtained prior to death in sixty-six patients and immediately postmortem in thirty-one instances. Antemortem specimens showed correlation in fifty-six of the sixty-six cases; postmortem specimens correlated in twenty-seven of the thirty-one cases. Of twenty-four livers in which no specific diagnostic changes were noted on biopsy, twenty-three showed a similar lack of changes at necropsy. In thirty-two cases of neoplastic disease, twelve biopsies failed to show the presence of tumor. Complete agreement between findings at biopsy and at necropsy was noted in twenty-one cases of cirrhosis, nine cases of obstructive jaundice, five cases of fatty vacuolization and two cases of acute yellow atrophy.

Christian, in 1952, did a "brief study to determine the effectiveness of needle biopsy in representing the histology of the entire organ." Material was obtained from five widely separate regions of the livers of ten deceased persons by means of biopsy technique; this material was assigned secret identification and was submitted to a pathologist for interpretation. General agreement was noted in these ten instances between findings of needle biopsy and those established by thorough examination of the entire liver.

Materials and Methods

By means of biopsy techniques, 282 specimens of liver were obtained from 207 cadavers prior to detailed necropsy. With the exception of stillborn infants, who were excluded, the 207 cadavers utilized in this study represented nearly consecutive deaths from all causes at the Mayo Clinic and the Rochester State Hospital.

Hepatic tissue was obtained from eighty-five bodies prior to embalming, whereas 122 bodies had been embalmed when the specimens were taken. The elapsed time after death varied from one to thirty-two hours, with an average of 3.18 hours.

The Vim-Silverman needle was used in all instances. The majority of specimens were taken via the transthoracic approach in the right an-

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Abridgment of thesis submitted by Dr. Brandenburg to the Faculty of the Graduate School of the University of Minnesota in partial fulfillment of the requirements for the degree of Master of Science in Medicine. Because of lack of space, the complete list of references used to document this work has not been used.

terior axillary line. The remainder, especially when the liver was known to be enlarged, were obtained by use of the right subcostal approach. When the initial attempt resulted in failure to obtain tissue, second and, occasionally, third attempts were made. When failures resulted from the subcostal approach, the transthoracic route was utilized. Since 1950, Stauffer[6] has used a modification of the original Vim-Silverman needle, which has decreased failures to obtain tissue in living patients to 1 or 2 per cent.

The core of tissue obtained from the liver was placed immediately in 10 per cent solution of formalin. Specimens varied from 2 mm to 2.5 cm in length and were 2 mm in diameter. After fixation in the formalin all specimens were cut longitudinally and stained with hematoxylin and eosin. In addition, selected specimens were stained with van Gieson's stain for connective tissue, with Gömöri's reticulum stain, by the Prussian-blue method for iron, and with cresyl violet for amyloid.

These sections obtained by means of biopsy techniques were then compared with the regular pathologic sections made at necropsy; at the latter time, routine sections were taken from the right and left lobes and additional sections were made as indicated by the gross findings. On the basis of microscopic examination of the tissue obtained by needle and prior to examination of the regular necropsy sections, a definitive pathologic diagnosis was made whenever possible. In addition a brief description of the histologic findings was made. If no diagnosis was possible, only the description was recorded.

On the basis of this comparison, the sections obtained by needle were graded as correct, suggestive or false. These sections were considered "correct" if they compared favorably with the regular necropsy sections and if a correct pathologic diagnosis could be made. Sections were considered "suggestive" if they suggested the correct diagnosis but if some details necessary in making this diagnosis were lacking; this might mean simply that the tissue procured by needle did not quite reflect the over-all status of the hepatic parenchyma. Sections were considered "false" if they did not furnish sufficient data for diagnosis.

The sections obtained by biopsy techniques were also classified as "adequate" or "inadequate." Sections were adequate if the amount of tissue sufficed for the purpose of diagnosis and if fragmentation and distortion were minimal or absent. Inadequate sections were those in which mechanical defects were moderate or marked. As might be expected, considerable correlation was present between the adequacy of the section obtained by needle and its diagnostic value.

TABLE I. RESULTS OF HISTOLOGIC EXAMINATION OF TISSUE REMOVED AFTER DEATH BY NEEDLE FROM 207 LIVERS

Condition	Total Cases	Diagnostic			Technical	
		Correct	Suggestive	False	Adequate	Inadequate
Normal liver	72	63	9	0	62	10
Chronic passive congestion	36	31	4*	1	34	2
Metastatic carcinoma	17	5	0	12	11	6
Fatty liver	15	14	0	1	14	1
Cirrhosis†	12	7	4‡	1	8	4
Leukemia	12	8	1	3	8	4
Focal granulomas	10	2	0	8	6	4
Hepatitis	7	3	2§	2	4	3
Obstructive jaundice	6	5	1	0	5	1
Cholangitis	5	1	4	0	1	4
Hemangioma	4	0	0	4	3	1
Amyloid	2	1	0	1	1	1
Hodgkin's disease	1	1	0	0	1	0
Miscellaneous	8	7	0	1	7	1
Totals	207	148	25	34	165	42

*Of these, three were adequate and one was inadequate.
†Includes two cases with hepatoma, two with hemochromatosis and one with biliary cirrhosis.
‡Of these, three were inadequate and one was adequate.
§Of these, one was adequate and one was inadequate.

Results

The diagnostic and technical gradings of the sections obtained by needle from the 207 livers are presented in the table. When more than one specimen was obtained in any instance only the better or best specimen was utilized. Examples of the histologic features encountered are illustrated in Figures 1 and 2.

Comment

Results in the livers affected by focal hepatic disease, such as metastatic carcinoma, hemangiomas and granulomas, require some comment. In the seventeen instances of metastatic carcinoma, the needle specimen was negative in twelve and diagnostic in five. This poor diagnostic percentage can be explained in part by the fact that only one to five metastatic nodules were found in the liver in five cases and hepatic metastasis was not suspected in any of these cases at the time of death. In the other seven instances in which the diagnosis was missed, there was moderate to extensive spread of malignant tissue that was simply missed by the biopsy needle. In a large

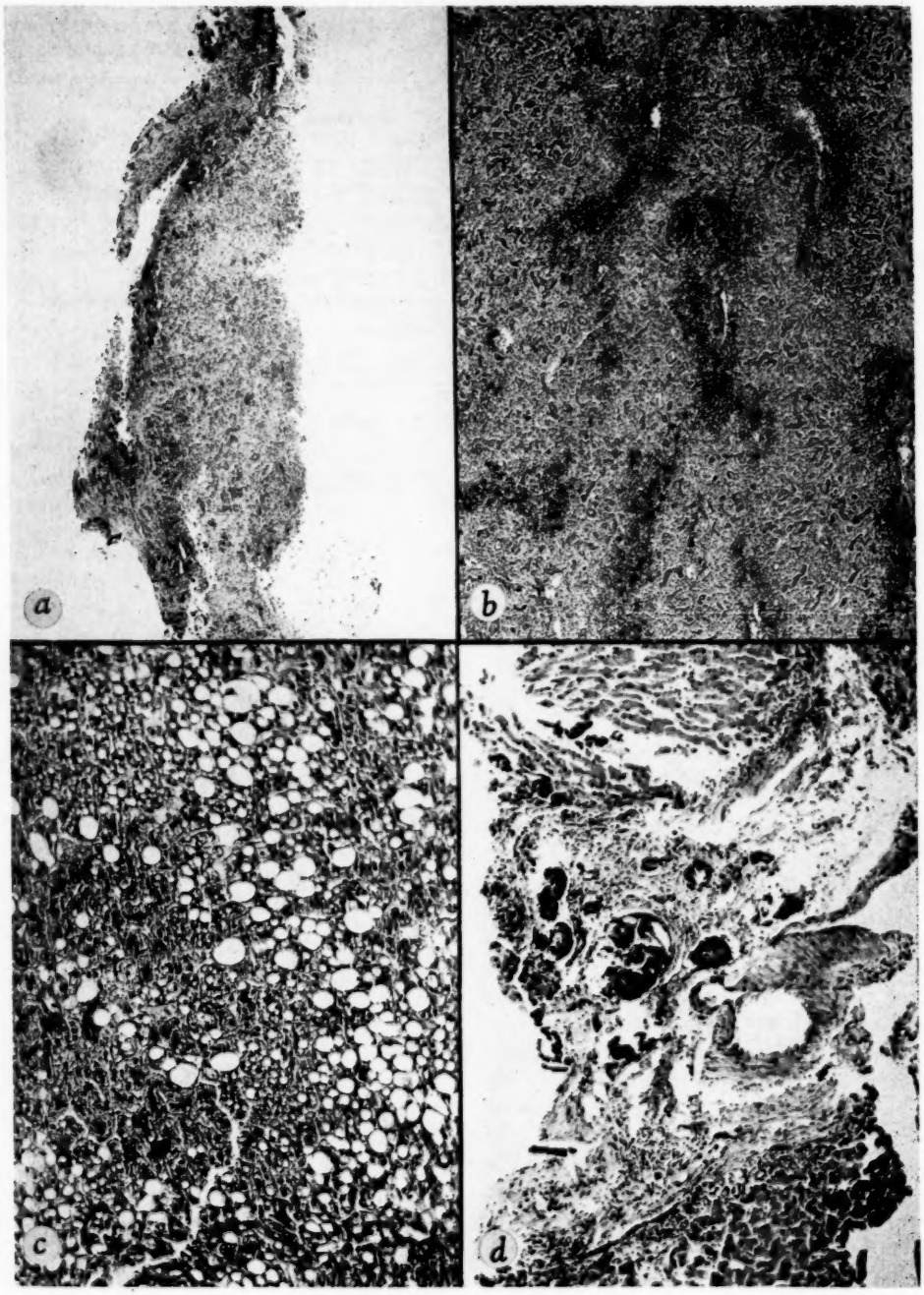

Fig. 1*a*. Needle specimen showing acute hepatitis with extensive cellular infiltration. *b*. Regular necropsy specimen in same case, showing extensive areas of hemorrhage in addition to the findings in *a*. These hemorrhagic areas were extensive throughout the entire parenchyma, but were not apparent in sections obtained by means of biopsy technique (both hematoxylin and eosin; x29). *c*. Extensive fatty infiltration in a forty-three-year-old man, an alcoholic, who died of lobar pneumonia (hematoxylin and eosin; x105). *d*. Metastatic carcinoma of the liver. The primary lesion was in the rectum (hematoxylin and eosin; x65).

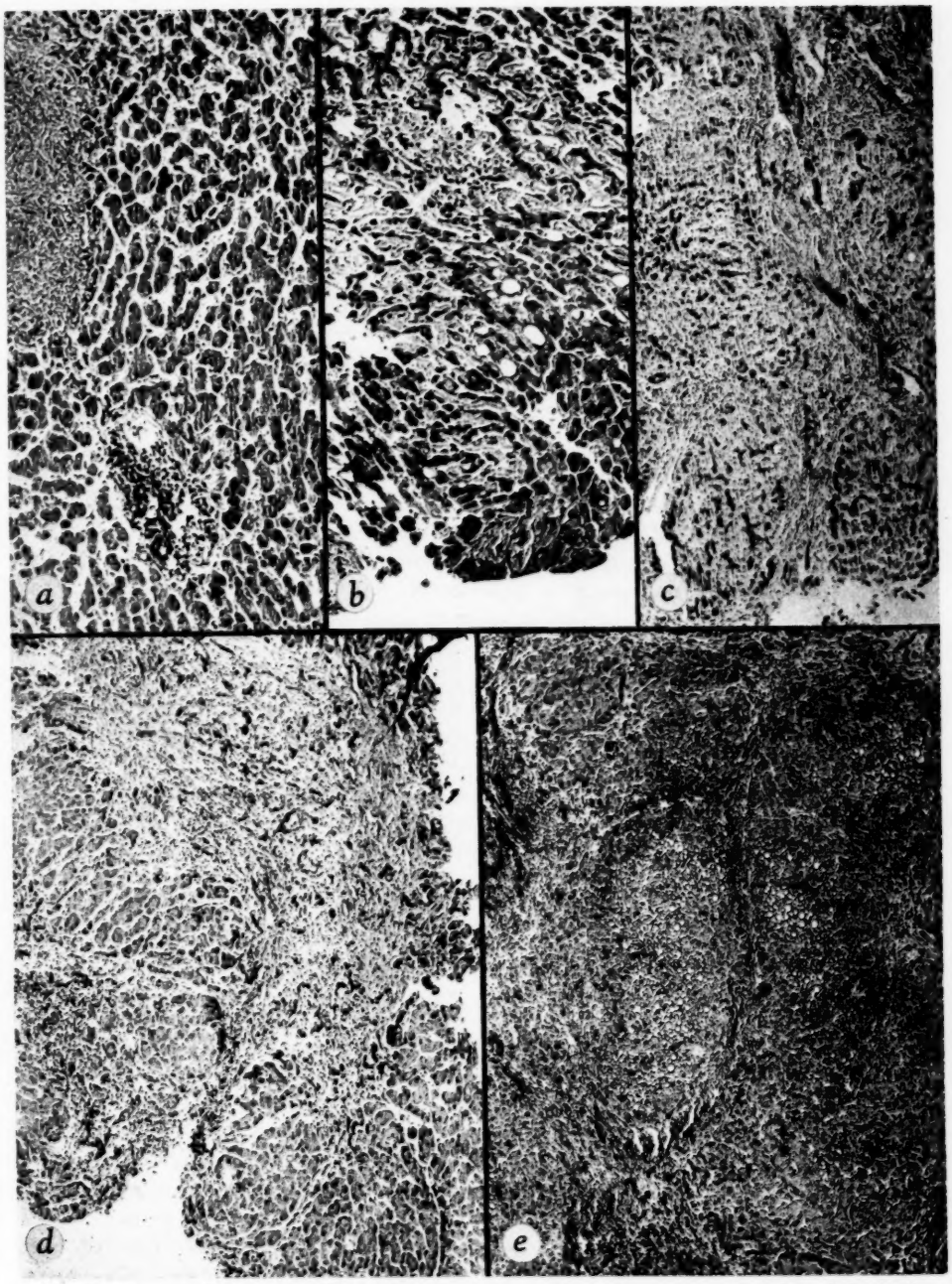

Fig. 2*a*. Acute leukemia and miliary tuberculosis. A granuloma is present at the edge of the section; note periportal collection of lymphocytes (hematoxylin and eosin; x105). *b*. Amyloidosis of the liver. Note pale, homogeneous areas of amyloid almost entirely replacing parenchymal cells in some parts. There was similar involvement of the spleen, adrenals, lymph nodes and kidney (hematoxylin and eosin; x100). *c*. Extensive deposits of iron in the parenchymal cells characteristic of hemochromatosis. There are associated fibrosis and regenerative nodules (hematoxylin and eosin; x65). *d*. Regenerative nodules, fibrosis and regeneration of bile ducts characteristic of cirrhosis. The broad band of fibrosis and lack of fat are more suggestive of postnecrotic cirrhosis than of Laennec's cirrhosis. *e*. Routine section at necropsy from same liver showing rather uniform small regenerative nodules, thin bands of fibrosis and fatty changes characteristic of Laennec's cirrhosis (both hematoxylin and eosin; x65).

series of needle biopsies, Stauffer[5] has obtained positive results in malignant neoplasms in approximately 70 per cent of the cases. This degree of accuracy has been attained in cases in which the liver was large in most instances and by taking multiple specimens from one or two sites, with the use of frozen sections until evidence of malignancy was found.

In the four instances of single hemangiomas of the liver, the lesion was missed in all.

The lesion was missed in eight of ten livers affected by focal tuberculous granulomas or granulomas of unknown cause. In two of these eight cases, only two and five small white nodules respectively were present in the entire parenchyma. In the remainder, however, the granulomas were diffusely spread throughout the hepatic parenchyma. In only one instance was the granulomatous hepatic lesion a manifestation of active tuberculosis. On examination of the microscopic sections obtained at necropsy it was noted that in most instances the granulomas were distributed sparsely enough in the hepatic parenchyma to make a "miss" at needle biopsy appear likely. In Figure 2*a* it can be noted that the specimen obtained by needle caught only a portion of a single granulomatous lesion. This would suggest that perhaps repetitive biopsy should be done to increase the percentage of positive results when granulomatous processes are suspected.

Since the selection of cadavers for this study represented nearly consecutive deaths from all causes, it would be expected that there would be a relatively large number of normal livers and livers showing only chronic passive congestion associated with cardiac disease. This is borne out since thirty-six specimens showed chronic passive congestion and seventy-two specimens were normal.

Results of study of needle specimens in the presence of diffuse hepatic disease were consistently good when the specimen was adequate. The majority of inadequate specimens were obtained in the early part of the study. As experience was gained, the incidence of poor specimens became progressively less and consequently the incidence of correct diagnoses improved. In the presence of diffuse hepatic disease it was impossible to make the correct diagnosis in only five instances in which good technical sections were obtained; these five cases included one of cirrhosis, one of hepatitis and three of chronic passive congestion.

While hepatic biopsy in diffuse hepatic disease has been shown to have great value, various shortcomings of the procedure have been reported. Womack noted that the study of lobular arrangement and relationships in such specimens was unsatisfactory. Volwiler and Jones stated that in coarsely nodular "toxic cirrhosis" a specimen procured by needle biopsy may fail to include scar tissue although the specimen is apparently sufficient in amount. Ricketts and associates reported on a patient in whom biopsy of the liver showed normal findings. At splenectomy they found extensive cirrhosis with irregular nodulation of regenerated liver separated by wide zones of scarring. The biopsy needle had entered areas of scarring separated by regions of apparently normal hepatic tissue. Stauffer[6] has noticed that nodular regeneration not found in specimens obtained by needle is often evident in larger wedge-shaped specimens obtained surgically, especially in primary biliary cirrhosis.

Results of this study would verify the opinion of some investigators who have noted that in some instances hepatic biopsy does not reflect adequately the general state of the liver in diffuse hepatic disease. Figure 1*a* and *b* is an example in that tissue obtained by needle did not show the rather pronounced hemorrhagic aspect of the hepatitis noted in regular sections. In sections from cirrhotic livers, also, it was noted that the over-all architecture of the parenchyma was not accurately portrayed in all instances. This was especially apparent in one instance of cirrhosis following homologous serum hepatitis: the needle specimen showed clear-cut evidence of cirrhosis but in these sections the individual hepatic cells appeared relatively normal. Routine sections at necropsy showed pronounced destruction of the lobules in many regions, with early regenerative changes at the periphery; these sections indicated a much severer process than was indicated by the needle specimen. It is of interest that hepatic cells often appear normal in a regenerative nodule in any type of cirrhosis.[6] In another instance the specimen obtained by needle was characteristic of post necrotic cirrhosis; however, gross examination of the liver and study of the routine sections at necropsy showed the condition to be Laennec's cirrhosis (Fig. 2*d* and *e*).

Despite these limitations it was still possible to make a definite diagnosis in most of these

cases, and this ordinarily is the most important fact to be gained from biopsy. Variations in the degree of injury to hepatic cells and connective-tissue changes in hepatitic and cirrhotic processes in various parts of the liver have been known for a long time, and it is apparent that tissue procured by needle can reflect only a small part of this process. Fortunately, in almost all instances, the degree of variation of the microscopic change in various portions of the liver in diffuse disease is not great enough to prevent accurate diagnosis at biopsy.

Summary and Conclusions

Specimens from the liver were obtained by use of the Vim-Silverman needle in 207 cases shortly after death. Results of study of such tissue were compared with results of examination of routine sections at necropsy from each lobe of the liver plus special sections through diseased portions.

From the standpoint of diagnostic accuracy the specimens obtained by means of biopsy techniques were correct or suggestive in 173 of the 207 cases. This represents an accuracy of approximately 83 per cent. In thirty-four cases, results of study of needle specimens were false; of these, twenty-one failures were for technical reasons. In this study on cadavers, continued experience with the Vim-Silverman needle increased the percentage of adequate specimens obtained by needle.

The highest degree of correlation was found in cases of fatty livers, normal livers, chronic passive congestive and obstructive jaundice. The percentage of missed diagnoses in metatastic carcinoma was high when compared to that found in clinical experience. This was due in part to focal lesions clinically unsuspected in some cases and in part to failure to repeat the biopsy. The biopsy needle missed involved tissue in seven of twelve cases in which the metastatic lesions were extensive.

Focal lesions, such as malignant lymphoma or tuberculosis, were rarely diagnosed by examination of tissue obtained by needle in this study. This suggests that multiple biopsies might be considered when such lesions are suspected. The correlation was high in diffuse hepatic diseases, with the exception of those of a granulomatous nature.

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UNTOWARD EFFECTS OF CORTISONE, HYDROCORTISONE AND CORTICOTROPIN ON THE GASTROINTESTINAL TRACT

(Continued from Page 628)

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THE USE OF HEMODIALYSIS IN THE TREATMENT OF BARBITURATE INTOXICATION

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WHILE the depressant effect of large quantities of barbiturates on the central nervous system is well known, the exact manner in which it is produced remains obscure. There is general agreement that cerebral activity is depressed by interference with cellular oxidation primarily through the inhibition of cellular enzymatic systems.[3,10] Whatever the mechanism of this action, the presence of coma creates additional barriers to the successful treatment. The maintenance of adequate nutrition and skin hygiene and the prevention of pulmonary and urinary tract infections are problems which become proportionately more difficult with the prolongation of the coma. The rapid termination of coma is, therefore, necessary to the successful treatment of this condition.

The current aim of the treatment of barbiturate intoxication has been directed towards the stimulation of depressed cerebral activity. This has been primarily affected by the widespread employment of analeptic drugs and supplemented by general supportive measures. That this approach has not always been successful has been emphasized by Reed, Driggs, and Foote,[11] Mousel and Essex,[9] Schmidt,[12] and Mousel.[8]

The urinary excretion of barbiturates is quite slow although there is some variation in the rate of excretion depending upon the drug involved.[2] Only two of the current therapeutic measures are aimed at the elimination of the offending drug from the body. Of these, gastric lavage is widely used, extremely important, and most beneficial when employed immediately after ingestion of the drug. Massive intravenous infusions have been employed in an effort to promote diuresis and elimination of the drug. In view of the slow urinary excretion of the barbiturates, which may be further aggravated by coma and shock, a vicious circle results which can be interrupted by the removal of the drug as rapidly as possible.

The artificial kidney has provided an effective and rapid means of eliminating barbiturate from the body and successful treatment of two cases of barbiturate coma by hemodialysis has been reported by Kyle and associates.[5] The rate of barbiturate excretion by this method as determined by these authors was twenty-four to thirty times greater than that of the patient's own renal system.

The purpose of this communication is to report a case of barbiturate coma which did not respond to analeptics but in which consciousness was restored within twelve hours by means of artificial kidney dialysis.

Case Report

During a period of despondency, a twenty-seven-year-old housewife ingested approximately twenty one-quarter grain tablets of phenobarbital and fifty-three quarter grain capsules of nembutal. Four hours later she was found deeply comatose and was admitted to a local hospital where attempts at arousal were made with picrotoxin and electrical stimulation. Gastric lavage was not attempted. The patient remained deeply comatose and in addition developed an atelectasis as a result of the aspiration of pharyngeal secretions. This necessitated a tracheotomy. The patient was transferred to the University of Minnesota Hospitals approximately twenty-four hours after the ingestion of the drug.

Upon admission to this hospital, the patient was deeply comatose and responded minimally to painful cutaneous stimulation. The ciliospinal reflex was absent, the pupils were miotic but equal, and did not respond to light. The deep tendon reflexes were absent and no pathological toe signs were obtainable. A tracheotomy tube was present and functioning well. Respiratory movements were extremely shallow and rapid with a lag in evidence on the high side and moist râles in the right lung field. The blood pressure was 90/65, pulse 125 per minute and the body temperature was 99.6° F.

An admission urinalysis showed traces of albumin, sugar, occasional red blood corpuscles, leukocytes and casts. The blood urea nitrogen was 5 mgm per 100 ml, the hemoglobin was 15.2 grams and the leukocyte count within normal limits. The blood sugar, carbon dioxide combining power, and chlorides were normal. Chest x-ray showed a segmental patchy atelectasis of the right lung with a shift of the mediastinum to the right. Barbiturate was present in the urine. Initially the patient was given 1100 milligrams of metrazole which did not affect consciousness and which produced only transient weak knee and ankle tendon reflexes. Eighteen milligrams

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of picrotoxin were given with no appreciable change in the comatose state.

In view of the negative response to analeptics and the presence of atelectasis, prolonged coma, and mild shock, artificial kidney dialysis was instigated in the hope of eliminating sufficient barbiturate to arouse the patient. The blood barbiturate level, as determined by the ultraviolet spectro-photometric method was 2.65 milligrams per cent. The patient was given heparin prior to dialysis.

The apparatus employed was the artificial kidney designed by Kolff and modified by Merrill.[4,5,6] Dialysis was carried out for a period of six hours during which time the comatose condition gradually lessened. Three hours after the onset of dialysis the deep tendon reflexes were present in the lower extremities. Towards the latter part of the procedure the patient became quite restless, yawned frequently, and moved her arms and legs at will. The blood pressure which at the start of dialysis was 95/70 rose to 114/70 and the respiratory movements deepened. Two hours after the termination of dialysis the patient responded to verbal commands but was confused and disoriented. The gross confusion gradually lessened and disappeared during the following twelve hours. Eighteen hours after the start of dialysis, she was oriented and sitting up in bed. The tracheotomy tube was plugged and removed on the following day. At this time the patient was transferred to the psychiatric service since she was emotionally unstable and exhibited inappropriate behavior. Within a few more days the patient had recovered from all noticeable effects of the intoxication. She did continue to show a neurotic type of personality disturbance which, as far as could be assessed, was essentially the same as it had been before the suicide attempt. Neither clinical nor psychometric evidence of cerebral deficit could be found. The psychiatric aspects will be the subject of another communication.

The blood barbiturate level was 1.58 milligrams per cent at the termination of dialysis. The dialysis bath was changed during the procedure and the barbiturate content of the first bath was 162 milligrams. That of the second was 55 milligrams, making a total of 217 milligrams of barbiturate removed during the period of hemodialysis. The blood chlorides, CO_2 combining power, serum sodium and potassium were normal at the end of dialysis.

Discussion

While the distribution of the barbiturates in the tissues is poorly understood, the liver and kidney are known to exert a profound effect upon the metabolism of these drugs. In the liver the barbiturates are destroyed by side chain oxidations and the degradation products appear in the urine. Those barbiturates which escape hepatic detoxification are eliminated in the urine. The renal excretion of barbiturates is very slow, especially of those that are dependent upon the kidneys for their elimination, such as dial, alurate and barbital. In the normal human being, traces of barbital are detectable in the urine nine days after the ingestion of a single therapeutic dose. Of a given dose of barbiturate, only 8 per cent is eliminated in the first twelve hours, 20 per cent in the next twenty-four hours and 35 to 65 per cent in forty-eight hours.[2] The slow rate of excretion may be due to a slow release from tissue depots, delayed hepatic detoxification, or to reabsorption by renal tubules. The latter has been reported by Giotti and Maynert.[1] Impaired renal or hepatic function will further decrease barbiturate excretion. Barbital has a tendency to cause oliguria as large doses have an antidiuretic effect. Hypotension of any cause further reduces the excretion of barbiturates. Oliguria and hypotension are commonly seen in coma. Irrespective of the mechanism, the slow urinary excretion of the barbiturates is the basis of the cumulative effect, and in part accounts for the prolongation of coma. It is therefore apparent that the barbiturate should be eliminated as rapidly as possible. Gastric lavage is an effective means of removing recently ingested drug but is of little benefit when used twelve or more hours after ingestion.

The artifical kidney, by providing a large filtration area, effectively eliminates barbiturates from the body. Kyle and associates[5] demonstrated that human beings without renal disease excrete 4 per cent of an ingested dose of phenobarbital in two and one half hours, whereas it is possible to remove 66 per cent of the phenobarbital in the same period of time by hemodialysis. These authors reported two cases of barbiturate coma. In one of their patients 740 milligrams of barbiturate were removed in five hours by hemodialysis whereas only thirty milligrams had been excreted by the patient during the five hours preceding the dialysis. This patient was restored to consciousness in eight hours after having exhibited no improvement during the previous thirty-six hours. It is apparent from such cases and the one presented here that consciousness can be restored in a very short time by means of hemodialysis. The termination of coma over such a short period of time has distinct advantages to patient, physician and nursing personnel.

The indications for dialysis in barbiturate coma are as follows: (1) prolonged coma, (2) pulmonary distress, (3) unresponsiveness to analeptics, (4) oliguria, hypotension, (5) concurrent renal and hepatic disease.

Summary

A case of near fatal barbiturate coma treated successfully with hemodialysis is presented. The indications for the use of this procedure are listed with the primary aim directed towards the removal of ingested drug in order to shorten the period of coma.

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TREATMENT OF ADRENAL INSUFFICIENCY WITH CORTISONE AND HYDROCORTISONE

(Continued from Page 625)

maximal stimulation also. Measurement of steroid excretion is moderately time-consuming and exacting and is not generally available, so reliance on eosinophil response is usually a practical necessity. Very occasionally, patients with adrenal insufficiency react with fever and varying degrees of collapse to intravenously-administered ACTH. This danger is decreased somewhat by using a saline vehicle.

Summary

1. Cortisone and hydrocortisone have greatly improved the treatment of adrenal cortical insufficiency of both the primary and the secondary types.

2. Corticotropin (ACTH) has proved to be a very useful diagnostic tool in testing adrenal cortical responsiveness.

3. Problems in the use of these compounds involve chiefly adjustment of dosage under varying conditions of stress. Occasionally untoward reactions occur.

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Seminar

CHRONIC ULCERATIVE COLITIS

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"One swallow never makes a summer"[31]

We all pass a loose stool now and then. Down South these can be caused by all sorts of slimy things, but up here they are usually due to something we ate or drank the night before. The large epidemics of bacillary and amoebic dysentery have waned but we still have with us a few people who, for no known cause, develop a persistent purge. Webster's dictionary[175] defines normal as "according to or not deviating from an established norm," while disease is "any departure from the state of health producing marked symptoms." The present discussion is concerned with those patients whose frequent departures are caused by ulcerative colitis.

Age and Sex Incidence

"The roaring twenties"

For some unknown reason, the symptoms most often begin between the ages of twenty and thirty, but they may start at any age. Of 871 cases at the Mayo Clinic,[10] ninety-five were in children—three of these in the newborn. Banks and Klayman[9] reported a series of 200 cases in twenty of which the onset of symptoms came after the age of fifty.

Ulcerative colitis is probably as common in men as in women.[24,156,184] The only difference sex seems to make in these days of the joint income tax return is that the female is still the one who becomes pregnant. Opinions on the effect of pregnancy in ulcerative colitis range from: "Ulcerative colitis in pregnancy is extremely virulent and may be fatal"[130] to "adverse"[91,92,168] to "the effect of pregnancy is generally salutory"[53] with no authors undecided though the gentle touch of Chi Square could have softened these hard conclusions.

Symptomatology

"O wearisome condition of humanity"[69]

The history of a patient's illness is what we make it. We usually think of the symptoms of ulcerative colitis in terms of diarrhea. In the careful questioning of thirty-two patients in their first attack of ulcerative colitis, Engel[51] found that in 22 cases, the earliest symptom was bleeding and in ten of these patients, this was accompanied by constipation. Diarrhea was the presenting symptom in only 12 cases. Bleeding was also a prominent early symptom in recurrent attacks.

The number of stools may vary greatly during an attack. A sudden exacerbation can change a person with normal bowel movements into a bed patient constantly passing blood and pus.[185]

Proctoscopic Diagnosis

"The footprints upside down"

When you see a person with diarrhea, look in his rectum. That is where the diagnosis of ulcerative colitis is made, and that is the logical place to look rather than to start right off taking colon x-rays.[125] In at least one-third of the cases, the x-rays won't show anything anyway.[88]

We do not know the cause of this disease, so we can't make much use of the laboratory in diagnosis. The symptoms are too variable and can occur in other conditions so they don't help a lot and all we really have to go on is what the bowel looks like. Still, our batting average with a proctoscope is very good. The number of times you use vague terms like "proctitis" or "colitis" to describe nonspecific ulcerative colitis will depend upon how well you know the appearance of ulcerative colitis.

In the normal bowel, the mucosa is thin and transparent and you can see the blood vessels underneath. The normal velvety appearance comes from the presence of the innumerable microscopic crypts of Lieberkühn.

We seldom see the early transient stages of ulcerative colitis when the mucosa just looks red, and only the fact that it bleeds easily makes us suspect the diagnosis. Miliary abscesses may appear as tiny yellow spots which leave bleeding bases when wiped with a cotton swab.[26]

A more familiar appearance is that seen in the typical acute case. The valves of Houston look wider than normal because the mucosa gets edematous. This thick, red mucosa hides the blood vessels. The bowel lining is covered by a shaggy white scum of sloughed cells and pus.

Presented at Medical Grand Rounds, Veterans Administration Hospital, Minneapolis, Dr. E. B. Flink, Chief of Medical Service

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When you wipe it or touch it with the tip of the proctoscope, it oozes blood.

When the acute stage subsides, the mucous membrane begins to look pale, granular and glazed. The little miliary abscesses heal leaving tiny pock-like scars which Buie[26] calls "the footprints of previous activity." It is in the chronic stages that Nesselrod's[125] "three R's" appear—the valves of Houston become roughened, rounded and retracted. This, plus the narrowing and the loss of rugal folds in the rectosigmoid, gives the bowel a tubular appearance.

After the first acute attack of ulcerative colitis subsides, all stages of the disease may be seen in the intervals between exacerbations. Buie states that, "the numerous scattered pin-head ulcers and friability representing the active disease, associated with pock-like scars giving evidence of former activity, form a picture which is to me pathognomonic."

One may not see the large ulcers higher in the bowel, because it is often dangerous to run the proctoscope up very far. A good way to tell these ulcers from those of bacillary dysentery, tuberculosis or amoebiasis is that in ulcerative colitis all of the mucosa between the ulcers looks abnormal while this is seldom true in the other diseases that cause ulcerations.[125] In other words, discrete ulcerations favor bacillary dysentery, tuberculosis or amoebiasis. Of course, you should get stool cultures, aspirations for amoebae and a chest x-ray, but remember that there is no reason why a person can't have two diseases.

One diagnosis to keep in mind is a radiation proctitis following treatment of a carcinoma of the cervix—although it is hard to confuse the large anterior wall ulcer with ulcerative colitis.

In some parts of the country and depending somewhat on the recreational habits of the patient, a Frei test may be in order to rule out the proctitis of lymphogranuloma venereum.

The most important single thing to keep in mind when doing proctoscopy on a patient with ulcerative colitis is that these people have very tender rectums. Because it is a chronic recurrent disease, they often go to several doctors. If you ever want to see the patient again, be gentle with your rectal finger and try not to use air when you proctoscope.

In summary, ulcerative colitis remains one condition where the laboratory still hasn't replaced the physician who knows what the disease looks like.

X-Ray Findings

"Out, damned spot"[154]

The x-ray diagnosis of ulcerative colitis is often unreliable. It may be easy to diagnose when the entire colon is small, smooth and straight like a lead pipe, but you have to remember that the normal descending colon looks rather small and smooth.

The most common finding in a case of ulcerative colitis is tiny serrations—sometimes along the entire colon but more commonly about the sigmoid or rectum. However, retained fecal material can mimic this appearance exactly.

Always get an evacuation film. The barium-filled colon can look perfectly normal while an abnormal mucosal pattern may show up very well on the evacuation film.

If you think your patient has ulcerative colitis, do not order an air contrast barium enema. The distention may obliterate much of the mucosal pattern making diagnosis more difficult. There is also a very real danger of perforation. Results with the thick barium (Ude) technique (which is so useful in demonstrating polyps) are even less satisfactory.

Pathology and Differential Diagnosis

"The morphology of (ulcerative colitis and regional enteritis) is as different as syphilis is from gonorrhea."[174]

Some physicians have hazy ideas on the differences between regional enteritis and ulcerative colitis—particularly when regional enteritis involves the colon[104]—although the two diseases are very different pathologically.[2,18,174]

A complete study of these differences was recently made by Warren and Sommers.[174] They reviewed 300 surgical specimens of ulcerative colitis and regional enteritis. In about one-third of their cases of ulcerative colitis the terminal ileum[99] was also involved while in one-sixth of the cases of regional enteritis the colon was involved. They state that the two diseases rarely co-exist.

In regional enteritis the bowel resembles a "section of garden hose"[174] or a "boiled angleworm"[41] because of its sharp demarcation, thickening and grey to red-purple color. The thick-walled and narrow-lumened bowel produces the well-known "string sign." The mesentery is thick, stiff and corrugated and contains enlarged lymph nodes. Fistulae, adhesions, and abscesses are common. There are skip areas in less than ten per cent of the cases.[174]

On the other hand, the intestine in ulcerative colitis usually looks grossly normal from the outside although there may be some redness and spasticity found at time of surgery.

Warren and Sommers[174] microscopic description of the two diseases is as follows:

"Microscopically, regional enteritis is a progressive, granulomatous lymphangitis. . . . It affects the lymphatics in the intestinal submucosal, muscular and subserosal layers . . . producing what is essentially an elephantiasis. . . . In its earliest stages proliferation and desquamation are noted among the endothelial lining cells of the lacteals and lymphatics, producing cellular

masses that obstruct lymph flow. Then the plugged vessel is further altered peripherally by a proliferation of mesenchymal cells and an infiltration by lymphoid and monocytic leukocytes with formation of a tuberculoid granuloma. These tubercles may contain giant cells, usually of foreign body type. . . . However, caseous necrosis and acid fast bacilli are not seen. In the intestinal wall, (these changes) . . . lead to variable mucosal ulcerations . . . (through) interference with blood supply. . . . Gross ulceration is not a uniform characteristic of regional enteritis. The intestinal mucosa as a rule appears reddened, swollen and cobbled. However, once formed, ulcers . . . tend to persist with formation of fistulous tracts or intramural abscesses. . . . Perforation with peritonitis is unusual. . . . The (same process) is also found in the mesenteric lymphatics and lymph node sinusoids . . . . with tuberculoid granulomas in one-half to three-fourths of the cases.

"Microscopically . . . the damage in ulcerative colitis is surprisingly superficial—being mainly restricted to the colonic submucosa and mucosa. . . . In about half the cases studied it has not been possible to find indications of the type of lesion originally responsible for the ulceration . . . they show only shallow mucosal ulcers surrounded by acute and chronic inflammation, regeneration of mucous membrane, fibrosis and fatty infiltration of submucosa, and hypertrophy of colonic muscular tissue. . . . The inflammatory process is exudative and reparative, without any granulomatous tendencies. . . . In another 40 per cent of all nonspecific ulcerative colitis cases in which the evolution of the disease can be traced, an unusual primary localization of exudative inflammation is observed. The lesions begin with a collection of polymorphonuclear leukocytes in the bases of some of the colonic mucosal glands . . . (these) abscesses occur together and their ruptures allow pus to dissect along and separate portions of the mucosa . . . with resultant sloughing and ulcer formation. . . . When ulcerative colitis involves the ileum, there is an associated lymphangitis, as occurs with inflammations elsewhere, but no granulomas are formed."

In the remaining 10 per cent of their cases the disease was more severe. These patients had larger and deeper ulcers, and inflammatory necrosis of blood vessels with infarctions of the wall of the colon leading to perforation and peritonitis. The lesions resembled those seen in periarteritis and thromboangiitis obliterans.

Grossly, the involvement in ulcerative colitis tends to be diffuse and without sharp demarcation. The most striking change involves the mucosa with longitudinal and cross-connecting ulcers producing a network. The mucosa between the ulcerations is bright red or purple and may overhang the ulcers. Elongated tags of mucosa may hang free—these are called pseudopolyps and are not true adenomas—they are simply islands of mucosa remaining between ulcerations.

Because these two diseases are so distinct pathologically, it is logical to believe that in many cases, they can be separated clinically and roentgenologically. This has been true in our experience.

For instance, fistula-in-ano has been described as a lesion suggestive of regional enteritis.[41] Three of four patients seen at this hospital with a fistula-in-ano and a clinical diagnosis of ulcerative colitis had typical pathologic findings of regional enteritis on examination of the resected specimens. Two additional patients with fistula formation noted on barium enema also had a typical pathological picture of regional enteritis involving the colon. One patient with a "string sign" of the colon on x-ray also had regional enteritis.

The description of regional enteritis as a segmental disease and of ulcerative colitis as a diffuse, poorly demarcated process leads naturally to the question: Where do the cases of so-called "segmental colitis" and "right-sided colitis" fit in? Are they ulcerative colitis or are they regional enteritis?

The failure to attempt to separate these two diseases has led to some strange mixups: In 1950, 2,000 cases of ulcerative colitis were reviewed from the Mayo Clinic.[156] In 128 of these cases there was segmental involvement, i.e. "regional colitis." In 1954, 600 cases of regional enteritis were reported from the same institution.[172] No cases of "regional colitis" were included in the regional enteritis series although the authors referred to a "personal communication" from Newman, also of the Mayo Clinic, who had collected 201 cases of "regional colitis." In general they felt that these cases should be classed as regional enteritis. It seems probable that the reason why the cases of regional colitis were not included in the regional enteritis series was that they had already found a home in the reviews of ulcerative colitis.

In a recent article, Crohn[42] stated that in 8 per cent of his 300 office patients with ulcerative colitis, the disease was right sided. He stated that the bowel was usually thickened, but he did not discuss the pathologic findings in any detail.

Other reports of "segmental colitis" also fail to give detailed pathologic findings.[75,178] One case report of regional colitis confined to the sigmoid[60] described the involvement of a 12 cm. area by a large inflammatory mass with dense adhesions to the bladder. The mucosa was edematous and hyperemic and slightly polypoid in areas but no ulcerations were present. The wall of the colon measured 8 cm. in the narrowed portion. Gross descriptions of such lesions seem to resemble regional enteritis more than ulcerative colitis, but most writers do not include a detailed microscopic description. At present, the identity of "regional colitis" is not firmly established, but the few cases reported resemble regional enteritis grossly.

If the cases of segmental colitis are really regional enteritis, then localization of lesions in ulcerative colitis is simplified—it is a disease which invariably affects the distal colon and at times extends to involve the remainder of the colon and terminal ileum.

I could find no proctoscopic descriptions of the appearance of the lower bowel when the entire colon is involved by regional enteritis. In

three such cases seen at this hospital, proctoscopy showed:

(1) "A thick walled friable mucosa, the examiner's finger could be inserted through a fistula into a rectal abscess."
(2) "Marked injection and small irregular ulcerations with a stricture at 8 cm."
(3) "Patchy areas of inflammation in the recto-sigmoid." The proctologist stated: "This is not the picture of ulcerative colitis."

Complications of Ulcerative Colitis

"Whatsoever was the father of a disease, an ill diet was the mother."[137]

"Polyposis" is often said to be the most common local complication of ulcerative colitis.[12] That is undoubtedly true if you count islands of mucosa, i.e. pseudopolyps—but, the incidence of true polyps (those with an overgrowth of glandular epithelium) has not been shown to be increased.[173]

There is, however, a real increase in the incidence of carcinoma of the colon particularly in young patients who have had their symptoms for over ten years.[37,84,105,128,171,177,179] Carcinoma complicating ulcerative colitis is typically multicentric, invasive, and rapidly fatal. Of seventy-three cases of carcinoma reported by Shands et al[155] there were only two five-year survivors and one of these died of another carcinoma of the colon two years later. The incidence of carcinoma of the colon has been estimated to be from three to 30 times more frequent in ulcerative colitis patients than in the general population.[16,176] This incidence is not great enough to justify routine prophylactic colectomy but it does represent an additional reason for removing the colon in a young patient with severe, continuing, long-standing disease. It is probably foolish to do routine barium enemas (at, say, six-month intervals) in hopes of finding an early carcinoma. The infiltrating growth would be difficult to identify and the spread is too rapid to make periodic barium enema examinations for carcinoma practical.

Patients with ulcerative colitis often have hepatic,[79,169] pancreatic[8] and renal[78] lesions. Varying degrees of fatty infiltration of the liver are reported in over half of the cases studied by needle biopsy or at autopsy.[14,79,85,93,133] There may be an increased incidence of cirrhosis[74,144,169] but this depends somewhat on the definition of cirrhosis used. Findings in the pancreas[8] are those of interstitial inflammation, fibrosis and acinar dilatation. The renal lesions are those of tubular degeneration and necrosis.[78] Do these findings mean the ulcerative colitis is a systemic disease or could the changes be related to protein deficiency? Similar hepatic, pancreatic, and renal lesions are described in South African infants on a protein deficient diet—a disease called kwashiorkor, where fatty infiltration of the liver, fibrosis of the pancreas, and renal tubular degeneration has been described.[43]

Careful nitrogen balance studies[150] have shown that patients with active ulcerative colitis are in negative nitrogen balance. The nitrogen loss was not well correlated with the number of bowel movements. (Possibly this explains the failure of Ball, Baggenstoss and Bargen[8] to correlate the pancreatic lesions with the severity of symptoms). Normal post-operative patients on intravenous feedings lose nitrogen with frequent enemas.[138] A high protein feeding will restore the positive nitrogen balance.[150,187]

Skin lesions, notably pyoderma gangrenosum[36,106,151] are thought to be secondary to the malnutrition in ulcerative colitis.

Acute arthritis (with regression following surgery) is a rare complication.[114,180]

There may be a slightly increased incidence of peptic ulcer in persons with ulcerative colitis, but the association is relatively uncommon and the reported cases may be on the basis of chance.[32,72,181] Massive dilatation of the colon can rarely occur and when it does, it is often followed by perforation.[111,112,117]

Etiology

"Science is a sacred cow."[160]

For many years it was thought that Bargen had discovered the cause of ulcerative colitis. He reported the isolation of a diplostreptococcus from 80 per cent of 1,000 patients with ulcerative colitis.[12] In a way, he fulfilled Koch's postulates. He injected suspensions of these organisms intravenously in dogs and produced hemorrhagic lesions in the gut. The organisms recovered produced "the disease" in other dogs. Agglutinin tests using the serum of patients with ulcerative colitis were positive. However, later studies with the diplostreptococcus[44] revealed that those organisms are often present in the normal colon. These organisms have a tendency to clump by themselves so agglutination tests are not reliable. The production of lesions by the intravenous injections of these clumped organisms is probably a result of the method and not proof of the etiology of ulcerative colitis.

Most reviews of ulcerative colitis[23,116] refer to a paper by Felsen[52] suggesting that ulcerative colitis may follow bacillary dysentery. Felsen, a laboratory director, and Gorenberg, a resident in obstetrics, secured records on 122 of 210 persons who had been hospitalized nine to twelve months previously with a diagnosis of bacillary dysentery. Of these, 37.7 per cent had persistent or recurrent symptoms and the authors implied that these were due to ulcerative colitis or regional enteritis although an "x-ray diagnosis" was made in only

six of the patients and lesions (not described) were found on proctoscopy in only two. Even the occurrence of two cases of ulcerative colitis seems like a high incidence but Felsen and Gorenberg followed only hospitalized patients—not the mass of those with mild symptoms. If "bowel complaints" are not accepted as proof of ulcerative colitis, then their experience agrees with that of Brown and Bargen[25] who found only one instance of ulcerative colitis in a sixteen-year follow-up of 100 cases of bacillary dysentery. The presence of agglutinins against Salmonella or Shigella is not proof of infection since cross reactions with strains of coliform organisms have been demonstrated.[17] Perhaps the best argument against bacillary dysentery producing ulcerative colitis is that these infections are epidemic and tend to occur in many members of the same family while ulcerative colitis is a relatively rare disease which seems to occur at random.

There is little doubt that strong emotions can produce changes in the color and secretions of the colon.[63,64] It has never been shown that the repeated production of these changes can cause ulcerative colitis.[28] Although a great deal has been written about the psychiatric treatment of ulcerative colitis, there has never been a well-controlled psychiatric study of its etiology. The amount of work required in testing and interviews of patients and controls in such a study would be prohibitive.

Rowe[146] believes that allergy may be the cause of ulcerative colitis for such reasons as "ulcerations may arise from localized vascular allergy as do cancker sores in the mouth" and "the tendency to polyp formation as in the nasal mucosa suggests allergy as a cause." Andresen[3] is even more definite in his conclusions and states that "food allergy is the most important etiologic factor in ulcerative colitis" and "milk offends in over 80 per cent of the cases." He recommends a milk free diet. He also feels that peptic ulcers of the stomach and duodenum are probably allergic in origin[4] but has not suggested a milk free diet for peptic ulcer.

The role of the autonomic nervous system in this disease is about as clear as the anatomy of the sphenoid bone. Lium[102] in 1939 described a method of transplanting colonic mucosa to the abdomen of dogs. He noted that the application of acetylcholine to the surface of the explants would produce ulcerations if prostigmine were given intravenously to inactivate cholinesterase and intensify the effect of acetylcholine. The rationale of this experiment was that ulcerative colitis might be caused by excessive muscular contractions as a result of an overactive parasympathetic nervous system. This hypothesis was made more attractive by the fact that the author had seen two colons removed from patients with ulcerative colitis in which the longitudinal and circular ulcers seemed to parallel the muscle fibers of the colon. It was a good idea, but Warren and Sommers were unable to find a relationship between the position of the ulcers and the locations of the longitudinal and transverse muscle bands in their study of 180 cases.[173] Another correlation that failed was the demonstration in ulcerative colitis of a decreased serum cholinesterase—which has since been shown to be non-specific and likely related to the level of serum albumin.[120]

Numerous cholinergic drugs have been studied as possible etiologic agents in ulcerative colitis. Repeated injections of mecholyl in beeswax have produced ulcerations in the intestinal tract of dogs.[182] However these changes are transient[126] and not suitable for studying therapy.

Measurements of intracolonic pressures in dogs and man after vagotomy and lumbar sympathectomy have shown no change but section of the pelvic nerves in dogs reduced the pressures.[153] It is not possible to section the pelvic parasympathetic nerves in man without disturbing bladder function.

Because mucus is the chief secretion of the colon, the search began for some intestinal secretion which would lyse mucus and thus theoretically allow the normal bacteria of the colon to produce ulcers. It is hard to make any work with mucus sound scientific because anything that is done to mucus chemically will change its physical properties.[27] Therefore with little work on the effect of enzymes on mucus, efforts were directed at their other properties. Lysozyme is an enzyme (present in such places as gastric juice, tears and raw egg whites) which started one of our greatest five year wild goose hunts. Perhaps it was its beautiful name or the fact that it was easy to titre scientifically because it attacks the capsule of micrococcus lysodeicticus but at any rate, lysozyme titers were used as an index of activity[115] or as a method of checking the success or failure of various treatment regimes. The titres were invariably high in cases of active ulcerative colitis. Later it was shown that lysozyme would not dissolve mucus[109,127] and that the lysozyme was present only in the whole or lysed leukocytes.[86] Dogs with ulcers of the colonic mucosa produced by electrocautery passed large numbers of white cells and hence showed high lysozyme titres.[73] We gradually came back to something we already knew: patients with ulcerative colitis pass a lot of pus.

The tryptic digestion of the bowel by excess pancreatic enzymes was briefly suggested[43] but not proved in dog experiments.[98] The best evidence against this theory is that ulcerative colitis has been reported in patients with pancreatic insufficiency.

There has been little study of the mucus produced by mucus membranes—in contrast to the work on the mucus of connective tissue which contains hyaluronic acid. Hyaluronidase has no

action on the glandular mucins. Recently, Burnet[27] has shown that Vibrio cholerae organisms produce two distinct mucinases. Sammons[147,148,149] has demonstrated a mucinase in the stools of patients with ulcerative colitis and in the ileostomy discharge, and Stoughton[161,162] has shown that filtrates of stools from ulcerative colitis patients will lyse formalin-fixed skin and intestine. At the present time this work is too incomplete to allow conclusions.

An interesting case of anaphylactic shock following a procaine penicillin injection was reported by Whipple.[183] The patient developed an ulcerative colitis and ulcerative cystitis. Pathologically, the lesions were of the "periarteritis type" seen in 10 per cent of Warren's cases.

The Course of Ulcerative Colitis

"This long disease, my life"[134]

General Andrew Jackson first developed severe diarrhea during the Creek Indian Wars. This was quite a handicap, even for an alert Indian fighter. At the battle of New Orleans, he was having up to twenty bloody stools per day. In spite of this—or perhaps because of it—he was successful in defending the American trenches against a vastly superior British Army. He suffered from recurring attacks of diarrhea until his death at the age of seventy-eight.[77]

The bulk of the literature on ulcerative colitis deals with the hospitalized and, by inference, more severe cases. We have no idea of the number or prognosis of the milder cases because reports from the fighting front, if the proctologists' office can be called that, are rare.

In 1948, Miller and Machella[119] reviewed 3,639 medically treated cases of ulcerative colitis followed from one to ten years. Of that number, only 8 per cent obtained relief for an extended period while 46 per cent were unimproved and the remaining 41 per cent showed some signs of improvement. Most of them remained more or less incapacitated.

Other follow-up studies[80,89,140,152] are in general agreement and may be summarized as follows: ulcerative colitis is a chronic recurrent disease. Attacks vary in duration and severity. If patients are followed long enough, almost all of them will have recurrences. The majority of medically treated patients continue to live restricted lives interrupted by frequent hospitalizations. You often see a patient who has been "cured" a dozen times.

It would help a great deal in planning treatment of an individual case if we knew whether or not persons with severe symptoms at the onset continue to have more trouble than those with mild symptoms. We may suspect that they do because follow-up studies have shown that the hospitalized cases usually remain ill; and while we do not know exactly what happens to the mild cases which are frequent in an office practice[180] they must not get very sick or they would be included in the hospital series. On the other hand, Bargen[13] has frequently stated "Usually when the very sick patients recover, they remain well." He has not presented statistical proof of this statement. Such proof would be desirable because when a very ill patient is carried too long on medical management (with the hope of remaining well thereafter) the surgical mortality may be increased.

Medical Treatment of Ulcerative Colitis

"Again I am beginning to live a little and feel less like a sick oyster at low tide"[1]

Ross[143] recently reviewed 100 publications (selected at random from the recent medical literature) dealing with the therapeutic use of new drugs. He found that 65 per cent of the authors used either inadequate controls or no controls. In preparing this paper, I read eighty-five articles dealing specifically with the treatment of ulcerative colitis. I was unable to find a single controlled study in spite of the fact that the disease is characterized by unpredictable remissions. The papers on ulcerative colitis report from 40 to 90 per cent "good results" using everything from raw hog's stomach to the wonder drugs. By "good results" the authors usually mean that the patient underwent a remission during the period of observation.

Machella[109] has recently reviewed the literature and prepared the following table of the results of various types of therapy:

	Cases	*Per Cent Good Results*
Sulfonamides	1275	57.7%
Antibiotics	167	61.6%
Hog Stomach	104	52-81.0%
Anti Lysozyme	121	65.9%
Cortisone	25	44.0%
ACTH	117	67.5%

For some strange reason, the longer a drug is on the market the poorer are the results in treatment. It is a favorable sign that the initial reports on ACTH and cortisone[68,87,110,145] have not shown quite as good results as those papers on raw hog intestines[57] or aluminum.[124] This does not necessarily mean that the steroids are any less effective but the authors are getting more cautious. The most recent publications on the use of steroids have covered the side effects and their variable effects on the suppression of acute symptoms.[48,49,67,83,107,131,167,188]

Both the narrow and broad spectrum antibiotics were tried[19,163] but apparently lost potency.[108,113]

Levine,[100] in 1951, proposed a new concept of the pathogenesis of ulcerative colitis. He had noticed a "virtual absence of the basement membrane" in specimens taken for biopsy from

patients with ulcerative colitis and postulated that it might be a collagen disease. This paper prompted Sommers, Anderson and Warren[158] to make an intensive study of the basement membranes in ulcerative colitis. These authors found that the changes in the basement membrane were restricted to the areas of cellulitis and concluded that the basement membrane discontinuities were a secondary phenomonon following leukocytic infiltration.

However, the idea that ulcerative colitis was a connective tissue disease caught on and Svartz[165,166] prepared a mixture of aspirin and azo dye and sulfapyridine which she believed had an affinity for connective tissue. This drug was produced by her in collaboration with the Company Pharmacopeia in Sweden and marketed under the name of Azulfadine. She treated 387 patients with ulcerative colitis with this drug and of these, twenty-one patients had to discontinue treatment because of drug reactions—a tendency to leukopenia developed in five patients but "disappeared after liver injections." She initially reported 90 per cent "good results" and later 84 per cent good results. She stated, "In summary, I should like to stress the importance of treating ulcerative colitis with drugs having affinity for connective tissue since the main changes are localized to the submucous connective tissue."

Morrison[71,122] reported 58 per cent of his patients improved on Azulfadine and felt that this was superior to the results in his "control group" of patients treated in preceding years. Halstead[71] feels that the "results have not been striking," but Bargen[15] states that, "Azulfadine has been a tremendous help" although neither author has reported a significant number of cases.

For the sake of completeness, a word should be said about what happened to the "medical ileostomy" which consisted of tube drainage of the terminal ileum and non-residue feedings of amigen and dextri-maltose. The authors[118] later found that their results were just as good when the same feedings were used without the tube.

The literature on the treatment of ulcerative colitis contains so many articles that are controversial that it was a pleasure to review the writings on psychotherapy in this disease. All of the psychiatrists seem to agree that the "psychololgical disorder is fundamental"[157] and "the most important factor"[66] while the surgeons are in complete agreement that the "psychiatric aspect is by no means a major part of the problem."[96] A summary of articles on psychotherapy in this disease[34,50,65,70,81,101,135,136] might be: first, that probing is dangerous and unrewarding, and second, "a good doctor" invariably gets the best results.

Blood transfusions—even small amounts of blood given to patients who are not anemic are at times said to result in striking improvement.[13] Why should this be? It can't be the proteins because plasma only contains about 6 grams per 100 cc. It doesn't seem likely that it could be the red cells because they only break down at a rate of about 1 per cent per day. Either blood contains some as yet undiscovered substance which makes it a "good tonic" or else clinical impression is wrong again.

Kirsner and Palmer[86] state that in the diet of a patient with ulcerative colitis, fruits and fruit juices should be avoided while eggs and warm milk should be used for the acutely ill patient. Bockus,[121] on the other hand, says that citrus fruits and fruit juices are of great value while in many patients milk and eggs are not well tolerated. Although statements like these may confuse the physician, they make it easier for the patient—if he doesn't like his menu, he can simply get a new doctor.

The thing that determines whether or not a food is listed as "low residue" is its cellulose content.[33] The present use of cellulose compounds in the treatment of diarrhea in infants raises doubts about the rationale behind the almost universal use of the low residue diet in the treatment of ulcerative colitis.

Iconoclasts have attacked the use of absolute bed rest in such diseases as tuberculosis and hepatitis. Patients with ulcerative colitis also run a fever on the first few days after admission and this seems to subside with bed rest.

Surgical Treatment of Ulcerative Colitis

"Once . . . the diagnosis of ulcerative colitis is made, the problem is a surgical one"[153]*—vs.—"The vast majority of patients who have ulcerative colitis represent essentially medical problems."*[13]

"I want to emphasize my opinion that in every case where the patient has been shown to have ulcerative colitis . . . the gastroenterologist and the surgeon should meet and discuss treatment"[80]

In the first quarter of this century, when such things as abdominal ptosis and intestinal stasis were acceptable diagnoses, an English surgeon, Sir Arbuthnot Lane, whom Kerr[82] refers to as a "misguided enthusiast" began doing short circuiting operations and later colectomies not only for chronic constipation but also for mastitis, tuberculosis, rheumatoid arthritis, gallstones, gastric ulcer and goitre. This was the humble beginning of our present surgical treatment for ulcerative colitis.

For a more complete review of the history and techniques of surgery in ulcerative colitis, the reader is referred to the bibliography.† The best results have been reported with primary ileostomy and one-stage colectomy—removing the rectum at the same operation.[21,39,61,71,82,97,129] Even seriously ill patients seem to tolerate this better than

†See especially references numbered 5, 6, 20, 21, 22, 29, 35, 38, 39, 54, 55, 56, 58, 59, 61, 62, 71, 76, 90, 94, 95, 97, 129, 141, 142, 170.

a simple ileostomy probably because the colon, which Crile[40] states has the physiologic effect of an extensive third degree burn covered with a fecal poultice, has been removed. Ileosigmoidostomies have been almost uniformly unsuccessful. Vagotomy[46,47] has not been thoroughly evaluated but the results to date are equivocal.

Although a high mortality rate accompanied surgery a few years ago, recent reports[46,95] indicate that the mortality in good hands should be less than 4 per cent.

In contrast to the late results of medical treatment, most surgically treated patients do well.* The newer ileostomy bags have done much to minimize the discomfort of the ileostomy life. Sexual function is not disturbed if care is taken to keep close to the colonic wall in doing the abdominal-perineal operation.

However, we should remember that we do not see those milder cases who are seen in physicians' offices and large private clinics where the percentage of patients operated upon should be and is much lower.[13] The indications for surgery are difficult to define. The following direct quotations from the recent literature serve to emphasize the wide variety of existing opinions:

"Rarely should surgical therapy be carried out for the patient who has so-called intractable disease." Bargen.[15]

"Almost all patients can avoid operation but how many of them can do so and continue to carry on their normal activities?" Crile.[39]

"Operation is necessary when it is considered unlikely that the patient will return to a normal or useful life." Brooke.[20]

"The surgeons' position should be limited to the treatment of complications of the disease." Hutchinson.[76]

"Should surgery be done on all patients with ulcerative colitis?" Lahey.[96]

And in the words of the "misguided enthusiast":

"Many surgeons who regard the removal of a useless colon unjustifiable, knock the bottom out of a useful stomach without hesitation," (Arbuthnot Lane).[21]

A patient who undergoes a gastrectomy for peptic ulcer is often cured and is everlastingly grateful while a patient who has a colectomy for ulcerative colitis is left with a permanent disability. Perhaps it is minimal—they get married, have babies, go swimming and only change their bag once or twice a day. But, "a lifetime is a long time for second thought"[21] and the patient must be well aware of the nature and prognosis of his disease before surgery is performed.

At this hospital, a follow-up[123] of thirty-eight patients treated medically showed that twenty of them were living restricted lives requiring frequent hospital admissions whereas of twenty-five surgically treated patients, only two were doing poorly—one patient had been frequently readmitted for revision of his ileostomy and the other unfortunately had an ileosigmoidostomy and has refused abdominoperineal resection. It should also be pointed out that the surgically treated patients had all been previously treated medically with a poor response.

The initial high mortality of attacks of ulcerative colitis[140] has dropped. In recent years we have had no deaths at this hospital from medical treatment alone. Why has the mortality decreased? Rice-Oxley and Truelove were unable to show any improvement in prognosis with the use of antibiotics.[140] It seems likely that the increased awareness of the role of the potassium ion (the degree of potassium deficiency seems to be related to the fluid volume of the stools),[102] more physiologic electrolyte replacement, and the efforts directed towards correcting the plasma protein deficiencies[159] have all contributed to the declining death rate.

Our surgical mortality rate has been less than 5 per cent—perhaps this is a reflection of our tendency to operate before the patient becomes moribund. At one clinic, where surgery is reserved largely for the severe complications, the surgical mortality rate over the past ten years has been in the range of 25 per cent.[11]

The final answer on the indications for surgery is not apparent. The final decision should be an individual matter, arrived at by the co-operation of the internist and surgeon in the management of this difficult disease.

Summary

Certain aspects of the diagnosis, etiology, pathology and treatment of chronic ulcerative colitis have been discussed.

The advice of Plutarch[132] 2,000 years ago, still applies to the medical management of this disease:

"Like a skillful physician, who in a complicated and chronic disease, as he sees occasion, at one while allows his patient the moderate use of such things as please him, at another while gives him keen pains and drugs to work the cure."

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(Continued on Page 682)

Laboratory Aids to Medical Practice

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BIOPSY OF LYMPH NODES

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BIOPSY of lymph nodes for diagnostic purposes is a procedure that many physicians compare with the art of picking the most-likely-to-succeed box of crackerjack. This attitude is no doubt born of the somewhat capricious results of the enterprise.

Despite a certain degree of validity in the above simile, it is nevertheless true that discretion is rather more conducive to reward in biopsy of lymph nodes than in selection of crackerjack. Two attitudes toward the procedure are likely to subtract from its value:

1. The clinician may have a notion that the histopathologist is a wizard with a crystal ball who can look at microscopic sections of any lymph node and diagnose the disease that has baffled all.

2. The pathologist may have a notion that the first notion is correct or at least ought to be fostered in the clinician for purposes of morale.

Both clinician and pathologist should be capable of the self-confession that in order to make a histologic diagnosis the tissue must include the lesion and that, other things being equal, the largest lymph node detectable is most likely to provide the answer when the question centers around malignant lymphoma or an infectious process. When metastasis is also under consideration, the direction of lymphatic drainage in relation to a possible primary lesion justifiably may alter the importance of size alone.

Perhaps the most resistant problems in biopsy of lymph nodes occur in relation to the diagnosis of malignant lymphoma. From the pathologist's point of view most such problems can be eliminated by observance on the part of the surgeon of two basic rules:

1. In the presence of general adenopathy, the most desirable site of biopsy is usually the cervical region. Inguinal nodes are often enlarged from prior adenitis secondary to infections of the genitalia or legs, including numerous forms of dermatitis (lipomelanotic reticulosis). Axillary nodes have a habit of feigning disease, only to show their size is due to replacement by fat ("horseshoe node"). It is true that cervical adenopathy may result from infection of the upper part of the respiratory tract, but a history of such should not be distracting since many patients with cervical lymphoma relate the onset of their trouble to a sore throat, tonsillitis or "cold."

2. It is important that the pathologist receive the excised node or nodes in as nearly an intact and untraumatized state as possible. In certain forms of lymphoma, such as mature lymphocytic lymphosarcoma and follicular lymphoma, no diagnostic qualitative cellular changes are present and recognition depends largely on architectural features considered in conjunction with the cytologic population of the node. A fragmented specimen loses much of its value. Actually, in many cases of lymphadenopathy, a cluster of lymph nodes is present in the region of biopsy. One or more of these nodes often will prove nondiagnostic, while others readily provide an answer. For this reason, the surgeon should not be reluctant to remove the entire group intact, regardless of his utter faith in the ability of the pathologist to make a diagnosis from the most minute fragment of tissue.

Needle biopsy of lymph nodes for diagnosis of lymphoma has been recommended, particularly in Europe. Certain types of lymphoma, such as Hodgkin's disease, reticulum cell sarcoma and

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highly immature forms of lymphosarcoma, can be diagnosed occasionally on this basis. However, a negative result has practically no significance because the lymphoma may have involved only a portion of the node, which did not happen to be sampled by the needle, or the lymphoma may have been of a type in which qualitative cytologic features are absent. Histopathologic diagnosis of lymph nodes is difficult enough without conceding a handicap at the start. The most satisfactory and accurate approach probably is a combined histologic and cytologic examination, the latter being performed on imprints of the node stained by the Wright or the May-Grünwald-Giemsa method.

A place exists for examination of fresh frozen sections of lymph nodes if the limitations of the method are recognized. It is often possible by this means to determine the adequacy of the specimen while the patient is still on the operating table. If no significant changes are shown by rapid section, further exploration for more significant material can be carried out at once. If metastatic malignant invasion is recognized, the procedure can be concluded with the assurance that a second biopsy will be unnecessary. Also a fresh frozen section may offer guidance as to bacteriologic handling of the specimen before it has been rendered bacteriologically useless through fixation. The pathologist can be of real service to the patient by recognizing granulomatous reactions and directing animal and cultural inoculation for various bacteria and fungi. It is of equal importance to culture material that is histologically suggestive of Boeck's sarcoid, since negative results of culture and animal inoculation are of highest significance in the diagnosis of this condition.

A good routine practice is to divide all specimens of lymph nodes into two portions, one for bacteriologic examination and one for histologic study. With a sharp knife, the surgeon can cleanly transect the specimen at the operating table, placing one portion in a sterile container and submitting the remainder for histologic examination. Rarely is the specimen too small for this purpose.

An old rule that is almost an axiom states that lymphadenopathy in adults is due, with rare exceptions, to malignant lesions. In actual practice, however, the exceptions are not rare and the clinician who implies by his surprise and chagrin that the pathologist has missed the boat in returning a report of "hyperplastic lymph node" should remember that, even excepting the granulomas, there still remain many nonmalignant disorders associated with significant lymphadenopathy. These include, besides a sizable group of idiopathic lesions, such conditions as infectious mononucleosis, syphilis, lupus erythematosus and rheumatoid arthritis. Lymph nodes in the last disease have a facility for imitating malignant lymphoma, particularly follicular lymphoma and Hodgkin's disease.

Biopsy of lymph nodes perhaps has not been employed to its fullest advantage in therapeutic radiology. In malignant lymphoma proved by a single biopsy, it is natural to interpret clinically detectable nodes elsewhere as being involved by the same process and thus targets for radiation. Such assumption is by no means supportable by fact. If the radiologist desires to reserve treatment for involved areas, multiple biopsies of questionable areas can be a decided guide to his attack. Also, a change of type in the lymphoma concerned may be discovered and may serve to explain an otherwise puzzling change of course in the disease.

Possibly the most outstanding innovation in biopsy of lymph nodes is the "blind" scalene, or paratracheal, node dissection. Introduced in 1949, this approach calls for removal of clinically nonpalpable lymph nodes from the supraclavicular region in the presence of indeterminate intrathoracic disease. The method has been of greatest value when mediastinal or hilar enlargement is demonstrable roentgenologically. Positive results have been obtained in a third of the cases in one large series. The method has been most productive in Boeck's sarcoid but also has been informative in tuberculosis, histoplasmosis, silicosis, malignant lymphoma and bronchogenic carcinoma. Although this procedure has not been fully evaluated it would appear impossible not to detect a faint odor of crackerjack in the situation.

President's Letter

EARLY DETECTION — A "MUST"

For many years now, those who are vitally interested in a cure for, or at second-best, the control of the dreaded scourge of cancer, have been emphasizing the importance of early detection.

In a concerted effort to impress this importance on the public mind, and the increased rate of cure with early detection, the State Association's Cancer Committee has co-operated with the Minnesota Division of the American Cancer Society in developing the program, "Every Doctor's Office—A Cancer Detection Center."

Now, the program is being accelerated, and united action is necessary to make it succeed. In the initial stages of the plan, county societies were requested to enlist aid of individual members to implement the program. Information and forms were sent to all Association members of county societies which had approved the program.

In the near future, all Association members will receive more information and a brochure, telling of the need for their help in reducing cancer mortality, and in increasing cure by early detection. The efficient methods of early detection employed by the Cancer Detection Center at the University of Minnesota are to be utilized to their fullest extent in operating this program.

A certain amount of county society apathy has been encountered, and it is hoped that this is only because the county groups have not had a chance to meet and approve the program. I would strongly urge county societies to consider the program with renewed interest, realizing the great good individual members can do in helping to eradicate the incidence of cancer. It is emphasized that the cancer detection examination in the individual doctor's office is a relatively simple procedure, for all forms and guiding information will be supplied by the Cancer Committee through the auspices of the Minnesota Division, American Cancer Society.

Through united action, Minnesota physicians are in an excellent position to be benefactors to many persons who do not realize that cancer can actually be cured, if it is caught early enough. Physicians are urged again to become active participants in this important work—for through early detection, the goal of a high cure rate can be realized in this state. As individual physicians, and as an Association, we cannot afford to miss this opportunity to be of further service to the people of Minnesota.

President, Minnesota State Medical Association

Editorial

ARTHUR H. WELLS, M.D., *Editor;* HENRY G. MOEHRING, M.D., and JOHN F. BRIGGS, M.D.

DRINKING DRIVER— SPORTSMAN OR MURDERER?

MINNESOTA is headed for an all-time record in the number of traffic accident fatalities. The State Highway Patrol is fighting a gallant but losing battle and is in desperate need of help from our profession.

It is generally agreed that one of the major factors in the nation's traffic accident rate is the drinking driver. In a scientifically sound study of car drivers in Illinois (Holcomb J.A.M.A., 111:1076, 1938) showed that a man under the influence of alcohol (0.15 grams or more of alcohol per 100 ml. of blood) had a fifty times greater chance of having an accident, than a sober man. Statistics and conservative estimates indicate that approximately one out of every six fatal car accidents is associated with a drinking driver. Of the 481 fatal motor vehicle traffic accidents in Minnesota during 1952, forty-nine (10 per cent) were proved to be associated with drivers under the influence of alcohol. There were at least 1290 persons injured during this period in accidents occurring under similar circumstances.

At the present time, the key to a partial solution of this problem is the enactment of legislation which relates blood alcohol levels to expected clinical manifestations. The American Medical Association and the American Society of Clinical Pathologists have long since expressed their approval of the principal features of the bill which failed to be passed by the Minnesota State Legislature during 1953. Since these matters are in the field of Medicine, one could hardly expect the layman to act without some active guidance from members of the profession in Minnesota. What is the explanation for our static inertia? Are there too many two-fisted drinkers among us, or is it the problem of someone else?

THE DOCTOR AND TELEVISION

AS PHYSICIANS, we have been derelict in our failure to accept our responsibility to instruct the public concerning medical care. This has come about partly through our heritage of the belief that it was unethical for a physician to be in the public eye. As a result, our medical societies have accentuated our poor public relations. Too often have we accepted the philosophy that "the public be damned." It has always been our responsibility to furnish the public with sound medical information. In failing to do so, we have made it possible for many unappropriate and incorrect medical philosophies to be propagated. Within recent years, organized medicine has recognized this responsibility to the public, and has emphasized that we as physicians must participate in those programs that give the public information. The first step in this direction was the development of Speakers Bureaus by the county medical societies as well as the state organizations to furnish speakers for lay groups. These speakers did and still are doing an excellent job in bringing true scientific medical knowledge to the laity. These Speakers Bureaus are increasing in number, and more and more physicians are accepting their obligation to the public by joining them. In addition, the voluntary health agencies, such as the Heart Association, the Cancer Society, the Christmas Seal Group, and the like, have brought a great fund of information to the laity concerning matters of health. A good deal of the information that they have disseminated arose originally from a small group of physicians who were interested in the problem of each voluntary health organization. Now we find that all of these organizations have their own physicians Speakers Bureau and, as a result, have brought prestige to the educational programs of these voluntary health agencies.

The result of physicians engaging in these activities has reflected itself in the public's acceptance of the medical programs. The public is vitally interested in medicine and in their own health, and the public is deeply anxious to find out what is new in medicine. A medically educated public will be the greatest supporter we have in our fight against socialized medicine. The people appreciate and recognize the gratuitous efforts

by the physician in bringing them medical information. The public also recognizes the great benefit derived from such an educational program.

With the development of the Speakers Bureau, it was soon apparent that this talent could also be directed into radio. Over a period of years, both organized radio lectures on health and lectures by physicians sponsored by the voluntary health agencies became prominent. Here, too, the public responded enthusiastically to the physicians' efforts on their behalf. Now television has increased the opportunity for the medical profession to be of public service. The development of medical panels, particularly those discussing questions of timely interest in health, has proven of great value and popularity. In Minnesota, the Doctor's Round Table, a public service program, designed by WCCO-TV and conducted under the sponsorship of the Minnesota State Medical Association and the Minnesota Tuberculosis and Health Association, has been eminently successful. This panel, by inviting outstanding authorities in tuberculosis as guests, has brought to the public of Minnesota a tremendous knowledge of the problem of tuberculosis. This panel also diversifies itself sufficiently to bring information concerning other diseases to the attention of the public. The Minnesota State Medical Association and the University of Minnesota, under the leadership of Dr. James Fox, carries a program on WCCO-TV on Mondays which has proven to be of immense interest to the people. This program has done an outstanding job in medical education. During the month of February, 1954, the Minnesota Heart Association, through the courtesy of KSTP-TV and under the leadership of Bee Baxter, presented a series of four lectures over radio and television concerning heart disease. These lectures were so popular that the station, in conjunction with Miss Baxter, has invited the Minnesota Heart Association to conduct a further series of such programs. The Minnesota State Medical Association, in conjunction with the Minnesota Heart Association, is now sponsoring a series of twelve such programs. These programs will be directed not only through television media but also by radio. The title of this series is "What's New in Medicine" and brings to the public information concerning a great variety of health problems. The television programs give an excellent opportunity for the presentation of material in a graphic method. The use of x-ray films, electrocardiographic tracings, surgical instruments, and the like enhances the interest of the viewer and listener. The use of the animated films to show the function of the heart, the use of medical educational films and other motion picture material has proven very effective. Throughout all of these programs the philosophy is maintained that a person who has symptoms or who is in need of medical care should consult his family medical advisor for guidance.

The Minnesota State Medical Association and its committee on radio and television must be congratulated on their acceptance and enthusiastic development of this new means of lay education. Under the leadership of the Council of the Minnesota State Medical Association and the voluntary health organizations, radio and television programs have been developed which will better our public relations. The Minnesota State Medical Association, in conjunction with the many voluntary health agencies, is doing everything possible to facilitate this type of education. The State Medical Association, as well as all the physicians in the State of Minnesota, is indebted to the various radio and television studios who have given so freely of their time to make this public service possible. We, who are practicing in Minnesota are indeed fortunate that our leaders in the medical profession have grasped the significance of the newer type of public relations and have done so much to make these programs possible and successful.

J. F. B.

GENERAL SURGERY AS A CAREER?

IF a medical student or interne asked me whether to take up general surgery today, I would not conscientiously be able to advise him to do so. The one exception to this generality is that small towns with small and limited hospital facilities still have a need for the general surgeon. Otherwise, I beieve that the general surgeon's field of activity will diminish more and more as the years go by.

Whereas, in Duluth, thirty years ago, six surgeons did about 90 per cent of all surgery, now there are over sixty surgeons, though the population has remained about the same. This indicates that formerly general surgeons had a wide

field of activity, but now more specialists are operating in a particular field, and more general practitioners do the common operations.

In the old days, training in general surgery was based on the assumption that the field began with the head and ended with the feet. Training both here and abroad assumed almost unlimited individual competence to operate anywhere on the human body. Now the head is almost completely excluded from the general surgeon's field, as are the skeletal system, the skin, the lungs, heart, genito-urinary and gynecological systems. Specialization has narrowed the general surgeon's field to the gall bladder and biliary ducts, hernias, and benign and malignant lesions of the gastro-intestinal tract. Even the latter is divided into several sections of specialty.

In my opinion there are today three factors that are limiting, and will continue to limit, the general surgeon's field of activity: (1) The growth and excellence of specialties and the continued education of the public to seek specialists in surgery; (2) the elimination of many surgical procedures through the use of antibiotics, radiotherapy, and other non-surgical treatments; (3) the increasing number of general practitioners doing the more common surgical operations, with or without assistance.

It was colorful and dramatic to watch the general surgeon of days gone by as he removed a clot from the brain surface one day, and in the next few days as he performed a thyroidectomy, drained an empyema, amputated a leg or an arm, resected a stomach or intestine or removed a gall bladder. The latter is about the only thing left to him today.

Therefore, when I am asked by a medical student or interne whether or not he should practice general surgery, my advice to him is to study and practice the surgical *specialty* of his choice.

A. E. Olson, M.D.

MEDICAL JOURNALISM: A NEW ADDITION TO THE COLLEGE CURRICULUM

LARGELY as the result of work by the Educational Committee of the American Medical Writers' Association, students may now pursue a four-year collegiate course in medical journalism. This course leads to a bachelor's degree and is offered by the School of Journalism and Communications, University of Illinois, the School of Journalism, University of Missouri, and the School of Journalism, University of Oklahoma.

The student who elects this course will spend approximately one-fourth of his training in professional courses in journalism; the remainder will be devoted to the humanities and sciences. The latter will include work in various biologic sciences, much of which will be provided in the medical and related departments of the university in question. As stated by Dr. R. M. Hewitt,* who is chairman of the committee that promoted this course, the aim was to find an educational institution to which we could go for graduates whose exposure to both the humanities and the sciences had been sufficient to make them of some use to us from the start of their employment as editors or . . . as medical writers, medical abstracters and medical advertising writers.

It is a rare person, indeed, who is well founded in both medicine and journalism. Yet a great demand exists for the individual who is trained to write well and who knows enough medicine to write intelligently about this particular field. It is to supply such writers that this new course is designed. Persons so trained will be able to fill positions in such places as larger medical clinics, houses publishing medical journals or books, various public health agencies, companies devoted to the manufacture of drugs and chemicals, and medical advertising agencies. Such work will be well compensated because the demand far exceeds the supply, which at present is practically nonexistent except on a fortuitous basis.

Much criticism has been leveled recently at scientific writing, especially that which pertains to medicine. There is no denying that the quantity of medical writing is too great, whereas its quality leaves much to be desired. This problem is being recognized by more and more physicians, as witnessed by the growth in membership in the American Medical Writers' Association from forty in 1947 to a total of 482 in July, 1954. The future production of well-trained medical writers should do much to improve medical writing by providing consultation from such persons, either as members of the Medical team or as free-lance writers.

The institution of this new collegiate course is of such importance that it should be made known

*Hewitt, R. M.: 1953 Report of the Educational Committee, American Medical Writers' Association. Mississippi Valley M. J., 76:3-6 (Jan.) 1954.

to all physicians. Further information concerning the purposes and ultimate aims of this type of training caan be found in an article by Dr. Harold Swanberg.† Details relative to the course itself can be obtained by writing to any of the three universities already mentioned. It is hoped that physicians who know competent young people about to begin college will pass on this information to them in an effort to enlist such persons in the career of medical journalism.

GEORGE G. STILWELL, M.D.

ROUTINE CHEST ROENTGENOGRAMS

MINNESOTA has made good progress in the acceptance by hospitals of the responsibility of doing routine radiographic studies of all patient admissions. Forty of the 200 general hospitals in Minnesota have now adopted this routine. Yet, think of the fact that 160 of our general hospitals still admit thousands of patients annually who are being denied what is now considered a very necessary health protection measure.

Most large hospitals routinely obtain chest roentgenograms of all patients admitted to their wards, principally because they have a resident radiologist and are able to give quick, efficient service. In some instances, technical costs seem to be the deterring influence. The seeming necessity of securing a photofluoric apparatus also appears to stand in the way of progress. Yet, the installation of photofluoric apparatus is not advisable unless there are more than 3,000 or 4,000 cases a year. Nearly all hospitals are equipped to give an examination on a 14 x 17 film, and in most cases the cost to the patient could be held under $2.00. Certainly, in most instances, it would not be more than that amount, provided the radiologist is willing to forego his professional fee. In some cases, the professional fee is as low as 50 cents.

Since the Minnesota Department of Health is no longer able to make mass radiographic studies, hospitals as the health centers of the community are the logical places to assume this responsibility. In some studies, the incidence of tuberculosis of patients admitted to hospitals has varied between 2 and 3 per cent. Such other pathological findings as cardiac enlargement, pulmonary neoplasm and tumors run nearly 10 per cent. From the standpoint of the control of tuberculosis, the routine x-ray examination in the hospital seems to be the best measure. The people in charge of hospitals should be aware of the other values to health through chest roentgenograms. Efforts should be made to increase as rapidly as possible present facilities and personnel to obtain a high percentage adoption of the x-ray case-finding methods in all hospitals in Minnesota.

RAY AMBERG, *President*
Minnesota Tuberculosis and Health Association

†Swanberg, Harold: Medical journalism and writing courses now available: something new in collegiate education. Mississippi Valley M. J., 76:147-150 (July) 1954.

STEROID THERAPY IN DERMATOLOGY

(Continued from Page 630)

tained even after discontinuation of the treatment.

In both lupus erythematosus and pemphigus, the steroid dosage is an individual matter. When cortisone fails or loses effectiveness, one may wish to use hydrocortisone or corticotropin (ACTH); in emergencies, the latter drug may be given by intravenous drip.

E. Systemic Disease.—

There are various other systemic diseases for which steroid therapy can be helpful but probably is not curative. Among these are periarteritis nodosa, sarcoidosis, leukemia and related disorders.

F. Varia.—

In various other conditions, treatment has been recommended by some observers but has not been found satisfactory by others. Though steroid therapy is probably the best available treatment for dermatomyositis, one cannot get very enthusiastic about the results. Steroids are of doubtful value in herpes zoster. They probably should not be used in scleroderma or in alopecia areata because of the risk of hypertensive renal disease, particularly in the former, and the necessity for continuous therapy in the latter if one expects to retain growth of hair. The arthropathy associated with psoriasis may respond to steroid therapy, but seldom does the psoriasis itself improve, and this treatment should not be used for psoriasis without arthropathy.

The Dean's Page

THE WORLD HEALTH ASSEMBLY

It was my privilege recently to serve as a member of the United States delegation to the Seventh World Health Assembly which met in Geneva, Switzerland, May 4 to 22, 1954.

The World Health Organization, with a membership of eighty-one countries, is a specialized agency of the United Nations. Of the eighty-one member nations, only sixty-five are active, as Russia and her satellites withdrew after the first World Health Assembly. Sixty-one of the sixty-five members were represented at the 1954 Assembly.

The meetings of the World Health Assembly were held in the beautiful large assembly hall and associated committee rooms at one end of the magnificent Palais des Nations (League of Nations Building). In the Council Chamber at the other end of this same building, the Asiatic conference was holding its highly secret, continually frustrating, and frequently bitter meetings. There was no intermingling of the groups whatsoever. In fact, our information as to what went on in the Asiatic conference was obtained primarily from the Paris edition of the *New York Herald Tribune.*

Most people would assume that the deliberations of the World Health Assembly would be concerned primarily with discussions of public health problems of international importance. Such, however, is not the case. Several special sessions are devoted to Technical Discussions, the subject of which at this assembly was "Rural Health." The major functions of the World Health Assembly, however, are legislative in character. Reports of health problems and health activities in different parts of the world are presented. Programs and policies, as recommended by the Director General and the Executive Board, are considered. Budget and scales of assessments are decided upon, and the relations of the World Health Organization to other international health organizations are reviewed.

To me, all of this, including budgets and scales of assessments, was most interesting. It gave one a bit of insight into the manner in which international organizations function, when the vote of a small, underdeveloped country counts as much as the vote of the United Kingdom or the United States of America. It showed what great patience, tact, and seemingly endless negotiations are necessary to get things done, particularly when national interest, national prestige, or national pride are concerned.

The accomplishments of the World Health Organization in the prevention of disease in many areas of the world are most impressive, and one cannot fail to be convinced that this is a program which should be expanded and intensified as rapidly as possible. In the judgment of all of us who made up the United States delegation, the limitation of three million dollars which Congress has placed on the United States contribution should be raised, or better still, removed. Larger expenditures in this field would not only strike at the roots of the conditions which provide fertile grounds for the empty promise of communism, but in addition they will build world-wide good will toward this country in a manner and degree that armaments can never equal.

Health is a subject in which nations, irrespective of their political philosophies, have a common interest. As such, more extensive international co-operation in the field of health may prove to be a common ground for the development of understanding and co-operation that could extend into more difficult areas. This is a field in which the United States has the ability as well as a unique opportunity to assume world leadership.

H. S. Diehl, M.D.
Dean of the Medical Sciences
University of Minnesota

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

HEALTH INSURANCE SHOWS "MUSHROOM GROWTH"

In a recent article on health insurance, the *Wall Street Journal* says of it: "It's Growing Like a Mushroom, though Plan for a Hothouse Fails." The lead of the story continued the simile by stating:

"The multi-billion-dollar health insurance business has quintrupled in size in the past ten years. There is no sign this explosive growth will come to a halt, even though Democratic congressmen teamed up with conservative Republicans yesterday to defeat an Eisenhower Administration plan for a speed-up.

"What the President aimed to do was build a hothouse where health insurance growth could be fertilized with Federal funds."

In spite of this, the article notes, "today some 100 million Americans have some form of protection against future hospital expenses. Over 75 million have insurance against surgical bills, and nearly 40 million have coverage on doctors' calls, usually just in the hospital." This amounts to 60 per cent of the total population of the country who carry health insurance in one, two or more forms.

Variety Noted

The article points out that the variety of coverage today is almost endless. It states:

"In company-union negotiations, especially for huge groups like the Steel or Auto Workers, sharp-penciled actuaries will tailor a medical 'fringe benefit' to fit almost any employer's pocketbook, and dozens of insurance companies will battle for the contract. For individuals, policies are available for everything from dental cavities to 'catastrophic illness' with surgical bills as high as $10,000."

In proof of the statement that this business is one of the most rapid mushrooming phenomena this country has seen, the article quotes an official of the Health and Accident Underwriters Conference as saying, "The accident and health business is the fastest-growing of any insurance line." Figures are also quoted:

"More than 800 insurance companies of all kinds, even some concentrating on fire insurance, are active in this business. Add to this the eighty-three regional Blue Cross plans, providing hospital coverage, and seventy-nine Blue Shield organizations, offering surgical protections; these two non-profit groups account for more than $1 billion of the present $3 billion total of annual premiums. . . . More than 300 colleges have enrolled about 900,000 students in health plans. It's estimated that several hundred doctors have arranged local systems for their patients. Just recently, a group of New York dentists organized a dental insurance plan, claimed to be the first comprehensive effort to take the pain out of dental bills."

Cites Economic Factors

The article emphasizes the fact that all plans have been bothered by rising costs. It states that hospital costs have been going up at the rate of 1 per cent a month and now average $21.09 a patient a day. This cost has doubled in the past eight years—although the average hospital stay has shortened at the same time.

Complaints on Criticism

Because some insurance companies are marketing health insurance as a "loss leader" in order to open the door for package deals for other types of coverage, such as life, auto and fire, many of the "Blues" and the labor co-operative groups are complaining that they cannot compete. The article quotes a secretary of a co-operative health plan as saying: "We have met almost insurmountable competition as the old-line commission companies have bid so desperately for group business, especially for welfare plans in labor unions. The co-operatively sponsored organizations which have tried to compete in the field have either lost out or taken heavy losses."

The over-all picture of the entire health insur-

ance situation in America seems to indicate that this field is enjoying a great boom; and one that is largely sparked by the very thing it originally set out to prevent: too much government intervention in the field of health. For it has been found that every time legislation is proposed or threatened which would allow the government to come in on some part of this field, an increase in health insurance business is noted. At least it appears that, from the view of organized medicine and unshackled medical practice at any rate, government attempts to get into the field have done some measure of good in a round-about way.

OFFICIAL WARNS OF SOCIAL SECURITY

"The average American thinks of the Social Security plan as a low-cost program with little idea of what it is going to cost in the future directly and indirectly." This statement was made as a warning by Ray D. Murphy, president of the Equitable Life Assurance Society of the United States, who spoke at the annual meeting of the National Industrial Conference Board some time ago, reported in Insurance Economics Surveys. Accordingly, he said, it is important at this time, when the whole plan is under revision, to encourage wide discussion of the old-age benefits under the system.

Warning that the present tax rate for Social Security is not stable at that rate (2 per cent from the employer, 2 per cent from the employee), he said that necessarily, "the top figure is uncertain since the result depends on many uncertainties."

Notes Misconceptions

Mr. Murphy sounded this fear: "A dangerous thing about Social Security in the United States is that the American people have not yet come to fully realize that 'More can be given,' as Lord Beveridge said, 'only by taking more.' The nation simply does not get something for nothing in Social Security." He continued:

"Another fundamental misunderstanding among many of our people has been that Social Security taxes are a form of savings being stored up for the future and guaranteeing their future benefits. . . . Use of the word 'insurance' is very objectionable to those in the insurance business. The words 'social insurance' slip easily from the tongues of many people, but the word 'insurance' suggests an individual equity relationship which simply does not exist in OASI. Neither is OASI based on commonly accepted insurance principles."

"Moreover, the incorrect impression that OSAI taxes are insurance premiums or savings has doubtless misled many into thinking that the government has sufficient money stored up to meet the benefits becoming payable in the future from wage credits already acquired. The uninitiated, when told that the OSAI holds some $19 billion in government bonds may have such a belief strengthened. Little do they realize that some $200 billion would be needed at the present time to cover the system's accrued liabilities."

Mr. Murphy stated that essentially the OASI system is operating as a pay-as-you-go plan with a moderate contingency fund available to act as a buffer to cover any temporary excess of benefit payments over tax receipts—an excess such as might occur in a business recession. Putting it another way, he explained that present active workers and employers are paying taxes for benefits to fellow citizens now on the benefit rolls; the active workers and employers themselves must look to future active workers and employers to do the same for them.

SOCIALIZED MEDICINE "TO STAY" IN BRITAIN

Speaking on the same program, Lord Beveridge of Great Britain stated that socialized medicine in his country "has come to stay." His famous Beveridge Report led to Britain's National Insurance Act of 1946, according to a recent issue of Insurance Economics Surveys. Lord Beveridge, seventy-five-year-old economist, conceded that the National Health Service was more expensive than had been expected and that it was in need of "tuning up." But, he added, there was no thought in Britain that the service should be abandoned.

Discussing the role of government in assuring the welfare of the people, he said: "The part of the state is to establish a minimum below which no man need fall, leaving freedom and responsibility for each man to make and live his life above the minimum."

Irradiation, triethylene melamine, and nitrogen mustard are usually the most effective therapeutic measures available for Hodgkin's disease, lymphosarcoma, follicular lymphoblastoma, and reticulum cell sarcoma.

Public Health

MINNESOTA HAS EPIDEMIC OF VIRAL HEPATITIS

Infectious hepatitis has shown a definite increase all over the United States during the last few years. Minnesota has been no exception. During 1953, there were 1192 cases with fourteen deaths reported to the Minnesota Department of Health. For the first seven months of 1954, there have been 1,772 cases reported. That figure would seem to indicate a decided increase in the number of reported cases for this year over last year. The following table shows the steady increase in reported cases for Minnesota during the last twenty years:

5-year period	*Cases*	*Deaths*
1934-1938	72	6
1939-1943	380	5
1944-1948	610	33
1949-1953	2071	45

Outbreaks of this disease have reached epidemic proportions in several Minnesota communities. Reports of a serious increase in the number of cases encountered by physicians came from the Little Falls area last year. The epidemic now appears to be subsiding there, but other areas have reported exceptionally large outbreaks this year. These localities include the counties of Faribault, Freeborn, Rice, Sibley, and Waseca in the southern part of the state; the Twin Cities, Anoka, and Washington counties in the metropolitan area; also Itasca, Mahnomen, Mille Lacs, Morrison, and Otter Tail counties in central Minnesota.

Mortality from the disease has been relatively low, as indicated by the table above and by the fact that only two deaths from infectious hepatitis have been reported for the current year. Deaths are uncommon in persons under forty years of age. Of the fourteen deaths in Minnesota last year, all but two were in persons over forty, nine of them being over fifty years of age. Cases, on the other hand, are most common among children and young adults.

Nearly all cases of this disease reported to the Minnesota Department of Health have been of the infectious variety rather than the homologous serum type. The two types of hepatitis are clinically indistinguishable. The chief points of difference are the incubation period and the mode of spread. The incubation period for infectious hepatitis is from fifteen to thirty-five days, the average being about twenty-five days. In serum hepatitis, the incubation period may be as long as six months; probably a period of twelve to fourteen weeks is most common. Infectious heptatitis is spread almost entirely by the fecal-oral route. Respiratory spread and spread by contaminated blood are negligible. In serum hepatitis, the mode of spread is by inoculation of infected blood or blood products and by use of needles and syringes contaminated with traces of blood from infected persons.

Both types of hepatitis are caused by a filterable virus—Virus A in the infectious type, Virus B in serum hepatitis. Both viruses are relatively resistant to heat but are destroyed by autoclaving or by boiling for fifteen minutes. Virus A is present in the blood for a short time during the acute stage of the disease and in the stools for a longer period. This virus has not been demonstrated in nasopharyngeal secretions or urine. Virus B has been known to persist in the blood of infected persons for as long as five years.

Control Measures

As in all diseases spread by the fecal-oral route, control of infectious hepatitis depends chiefly on good personal and community hygiene. Patients should be isolated for the first week of the illness. Bowel discharges should be properly disposed of. Outdoor toilets should be kept clean and flyproof. Hands should always be washed thoroughly with soap and water after use of the toilet, before handling food and before eating. Children should be excluded from school until clinically well. Quarantine of contacts is not indicated.

Gamma globulin has proved effective at least as a temporary preventive of infectious hepatitis. It should be given to all household contacts, regardless of age. It is available to physicians from the Minnesota Department of Health for preventive treatment of contacts. During the first six months of 1954, the health department distributed 10,468 cc. of GG for the prophylaxis of hepatitis. This amount represents at least 5,000 contacts who received protective doses from the physicians. It should be borne in mind, however, that the use of GG is not indicated once symptoms have developed, since it has no therapeutic value.

To prevent any possible spread by stylets, needles, or syringes, they should be thoroughly sterlized by heat. Syringes may become contaminated by traces of blood drawn into them in giving intramuscular or intravenous injections.

Infectious hepatitis is a reportable disease. Cases should be reported to the local health officer and the State Department of Health.

J. W. Bower, M.P.H.
Director, Departmental Administration
Minnesota Department of Health

MINNESOTA STATE MEDICAL ASSOCIATION

House of Delegates—Summary of Proceedings*

Duluth Session—June 6 and 7, 1954

First Meeting, Sunday, June 6, 1954

Ballroom, Hotel Duluth
Duluth, Minnesota

The 101st Annual Session of the House of Delegates of the Minnesota State Medical Association opened in the Ballroom of the Hotel Duluth, Duluth, Minnesota, at 2:15 p.m., Sunday, June 6, 1954, Dr. C. G. Sheppard, Speaker of the House of Delegates, presiding.

After an invocation by Reverend Arthur Young, pastor of the Lakeside Presbyterian Church of Duluth, "freshman" delegates, serving for the first time were asked to identify themselves, Dr. R. G. Arveson of Frederic, Wisconsin, chairman of the Council, State Medical Society of Wisconsin, was introduced, and minutes of the 1953 meeting were accepted, a quorum being present.

Dr. Sheppard then introduced Dr. Dale Cameron, new medical director of the Minnesota Department of Public Welfare who spoke briefly on medical problems of the Department of Public Welfare, stressing particularly the state program for the mentally ill and asking for the close co-operation of physicians of the state in solving them.

After assuring Dr. Cameron of the full co-operation of the medical association, Dr. Sheppard called on Dr. A. O. Swenson of Duluth, chairman of the Council, to report on Council meetings held Saturday afternoon and evening, June 5, and Sunday morning, June 6, 1954, at the Hotel Duluth.

Report of The Council

DR. SWENSON: The Council first considered the report of Dr. J. M. Stickney, chairman of the Finance Committee (see following) and approved sixteen applications for life membership in the association; twenty-four to residency membership; twelve to service membership; one to junior associate membership and five to associate membership. In view of some differences of opinion as to the Physicians Assistance Fund, a special committee to study the fund, the need for it and methods for using it, was appointed by the Council and the Speaker of the House. The report of that committee included a recommendation that the program be continued by means of compulsory assessments when needed; that candidates for aid be recommended first by the county medical society for investigation by a member of the state office staff; that it should be operated and designed to keep physicians off the indigent rolls and that no use be made of welfare aids for the physician or his wife or widow; that the maximum amount of aid be set at $125 a month for the single individual and $175 for the physician and his wife, the awards to be reviewed at six-month intervals. The Council recommended the permanent committee of five be enlarged to eighteen, with two members from each councilor district, that the work of the committee should continue to further clarify the undertaking, with no recommendation for immediate addition of funds, and with commendation to the committee for the fine work it has done to date.

Other actions included rejection of a request for a contribution to the Minnesota Indian Scholarship Committee, with the recommendation that the committee be informed of the Association's rural medical scholarship which is available to Indian as well as white medical students who qualify; approval of financial aid for one delegate to the Student American Medical Association from Minnesota and for sending MINNESOTA MEDICINE to all members of the Junior and Senior classes at the University of Minnesota medical school; a recommendation that present methods of solicitation for the American Medical Education Foundation Fund be continued and that no compulsory assessment be levied for the purpose; rejection of the proposed camp for diabetic children because of legal and financial complications; postponement of the transfer of the Mower County Medical Society from the first to the second councilor district, pending further developments; reduction of the number of members on the Editing and Publishing Committee with the editor to be an ex-officio member, this in view of the fact that the newly functioning Board of Associate Editors provides good representation for the state and with the understanding that the chairman of the committee will also be an ex-officio member of the board and with the further suggestion that publication of historical data be restricted to four issues annually with the dates to be set by the editor, so as to provide additional pages for publication of scientific matter in accordance with the request of the board.

The Council also considered the AMA questionnaire on fee-splitting and decided to send delegates to the AMA uninstructed on the matter except for a general expression that any change in the Code of Ethics should protect the public from evils of fee-splitting, but at the same time provide workable interprofessional relations in the care of the patient.

The Council also instructed the delegates to oppose a resolution of the California Medical Association which would declare osteopathy no longer a cult and permit physicians to teach in schools of osteopathy not previously investigated or approved by the Council on accreditation and advised waiting for final draft of AMA simplified insurance report forms before taking any separate action on such forms. It approved the television program called "How's Your Health" developed for the Association by Dr. James Rogers Fox and commended Dr. Fox for his work.

Two other problems were considered at length. The first was the cancellation of the Veterans Medical Service contract with the Association due to, as explained to the Council by Dr. Donald R. McCarthy, a decrease in the amount of service requested with resultant rise in cost of administration. Two possibilities were offered for future handling of the service. One called for a grievance committee to represent members of the Association in dealing with the Veterans Administration and would require a new contract. The other provided that about 2,000 Minnesota physicians, to be called "designated physicians," would negotiate with the Veterans Administration for care of veterans on an individual basis. These physicians would, in that case, deal directly with the VA as to care and reimbursement. It was agreed that the Council would sign no further contracts with the Veterans Administration, inasmuch as the Association will have no control over

*In accordance with action by the Council of the Minnesota State Medical Association taken in 1944, publication of the proceedings of the House of Delegates is limited to summary.

rules or regulations, and that the Veterans Administration should be allowed to negotiate with individual physicians, though the Association will give unofficial aid wherever possible to expedite home-town care for disabled veterans.

The other problem concerned malpractice insurance, and the Council reviewed at length the report of Dr. A. E. Ritt, chairman of a special committee to study the malpractice insurance situation, which showed that there has been a sharp rise in costs, that rates are higher in Minnesota than any other state except California and that they are equalled by only one state, Oregon; that most insurance companies are refusing to write new policies or renew old ones unless collateral insurance is purchased also and that very few, if any, insurance companies are interested in developing a commercial group plan for malpractice insurance. It was further reported that only fourteen out of seventy-three cases handled by one insurance company over the period studied had availed themselves of the services of the Association's Medical Advisory Committee. The special committee was instructed to continue its studies and the Council urged all members threatened with malpractice suits to inform the Medical Advisory Committee promptly, declaring that full utilization of the services of the Medical Advisory Committee could be expected to help correct the unfortunate situation in which physicians of Minnesota currently find themselves in relation to malpractice insurance.

Finally, the Council appointed a committee to revise and clarify certain ambiguities in the constitution and by-laws, reaffirmed its previous stand as presented in the report of Dr. R. H. Creighton, chairman of the Committee on Veterans Medical Service, on medical service for veterans with non-service-connected disabilities and instructed delegates to act in conformity with it at the AMA House of Delegates meeting in San Francisco. The Council nominated Dr. Edward E. Novak of New Prague as Minnesota's choice for the AMA Doctor of the Year award.

Subsequent discussion underlined the fact that no further action was proposed for the present on recommendations by the special committee to study the Physicians Assistance program, but that the committee had been instructed to work out details more completely and report at a later date. Also, the fact that the grave malpractice situation in Minnesota is not due to a higher average of cases in Minnesota was emphasized. The trouble lies in the large verdicts allowed by judges and juries in Minnesota, it was pointed out, damages awarded being out of line with those of other states.

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The report was unanimously accepted by the delegates, and Dr. Sheppard called for the report of Dr. J. Minott Stickney, Chairman of the Finance Committee.

Report of the Finance Committee

Dr. Stickney said that the permanent investment fund of the Association, now $104,863.18, has not yet reached an amount equal to one year's budget and should therefore not be drawn on for any purpose. No additional money, other than interest, has been added to the fund since 1946. He also pointed out that operating expenses of the Association had increased in comparison with 1953, largely because of increased committee expense. Income for 1953 exceeded expenses by $1,323.03, but he warned that the budget for 1955 will have to provide a larger budget for the Committee on Public Policy. He also pointed out that termination of the contract for Veterans Medical Service with the Veterans Administration may result in a net loss to the Association. The loss of $550 income from MINNESOTA MEDICINE in 1953, as compared with 1952, was accounted for by reason of increased expense in all departments of publication except editorial expense. Cost of the journal to the Association amounts to approximately $1.54 of each member's dues and will increase somewhat when the journal is provided, as directed by the Council, to an estimated 200 junior and senior medical students.

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It was moved, seconded and carried that Dr. Stickney's report be accepted and Dr. Sheppard then called for reports of the reference committees. The first was by Dr. C. W. Moberg, Detroit Lakes, Chairman of the Reference Committee on Medical Education Reports.

Medical Education Reports

DR. MOBERG: The committe considered the following reports:

Committee on Cancer—David P. Anderson, Jr., M.D., Austin, Chairman
Committee on Conservation of Hearing—K. M. Simonton, M.D., Rochester, Chairman
Committee on First Aid and Red Cross—John S. Lundy, M.D., Rochester, Chairman
Heart Committee—F. J. Hirschboeck, M.D., Duluth, Chairman
Committee on Hospitals and Medical Education—H. S. Diehl, M.D., Minneapolis, Chairman
Committee on Public Health Nursing—M. McC. Fischer, M.D., Duluth, Chairman
Committee on Syphilis and Social Diseases—H. G. Irvine, M.D., Minneapolis, Chairman
Committee on Tuberculosis—J. F. Briggs, M.D., St. Paul, Chairman
Committee on Vaccination and Immunization—R. N. Barr, M.D., Minneapolis, Chairman

All the above reports were considered and commended as well-written, concise and to the point, with the following special observations; that first-aid training, as outlined in the report of the Committee on First Aid and Red Cross, be developed in the public school system; that attention should be called to the increase in the number of tuberculosis deaths among people over forty-five in comparison with earlier ages; that the committee is in agreement with the policy of the Committee on Vaccination and Immunization with respect to delaying approval of polio vaccination in Minnesota; that special commendation should be given to the University of Minnesota as indicated in the Heart Committee report, for its outstanding accomplishments in the field of heart surgery; that Minnesota now has fourteen physicians per 10,000 population, as indicated in the report of the Committee on Hospitals and Medical Education which is a high ratio in comparison with other parts of the country and that the 12-month courses arranged by the University for training laboratory aides and technicians be continued; that Dr. H. G. Irvine and his department of the State Department of Health be commended especially for their excellent work in the control of syphilis and social diseases and that all practicing physicians should be reminded, in accordance with the recommendation in the excellent report of the Committee on Tuberculosis, to report all active cases of tuberculosis to the department of health.

At the request of Dr. Moberg, Dr. K. M. Simonton, Chairman of the Committee on Conservation of Hearing, commented on the work of his committee as follows:

He called attention of the delegates to the exhibit arranged by the committee and on view at the Armory. Also he told them about the circular on hearing problems both in therapy and rehabilitation, which is to go to all physicians of the state and about the letter to

parents of hearing-handicapped children, suggesting sources of treatment and directing them to consult their physicians. This letter is to go to all parents known to have such children in the state.

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The House of Delegates unanimously accepted Dr. Moberg's report and the Speaker called for the report of the Reference Committee on Medical Economics Reports, Dr. L. E. Steiner of Albert Lea, Chairman.

Medical Economics Reports

DR. STEINER: The following reports were considered:
Editing and Publishing Committee—F. M. Hammes, Sr., M.D., St. Paul, Chairman
Committee on Hospitals and Professional Relations—J. Minott Stickney, M.D., Rochester, Chairman
Committee on Interprofessional Relations—W. P. Gardner, M.D., St. Paul, Chairman
Medical Advisory Committee—W. H. Hengstler, M.D., St. Paul, Chairman
Committee on Medical Economics—George Earl, M.D., St. Paul, Chairman
Committee on University Relations—R. L. J. Kennedy, M.D., Rochester, Chairman

All reports were approved with the following comments: the sub-committee on the Rural Medical Scholarship should be commended for its diligence in selection of scholarship recipients. The work of the Committee on University Relations, and the Committee on Interprofessional Relations were both commended for helping to bring about the 12-month course for laboratory aides and x-ray technicians at the University; also the reference committee suggests that the Committee on Interprofessional Relations should advise all members on the status and ethical issues involved in advertising by pharmacists on prescription blanks. The reference committee commended appointment of Dr. A. H. Wells of Duluth as editor of MINNESOTA MEDICINE and the appointment of an editorial board to assist Dr. Wells and provide more active participation by members in direction of the journal. The committee likewise urged cooperation on the part of all members threatened with malpractice suits with the Medical Advisory Committee.

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The delegates accepted the report and the Speaker called for the report of the Reference Committee on Miscellaneous Scientific Reports, Dr. Donald McCarthy of Minneapolis, Chairman.

Miscellaneous Scientific Reports

DR. MCCARTHY: The following reports were reviewed:
Committee on Anesthesiology—R. C. Adams, M.D., Rochester, Chairman
Committee on Blood and Blood Banks—John S. Lundy, M.D., Rochester, Chairman
Committee on Child Health—G. B. Logan, M.D., Rochester, Chairman
Committee on Chronic Illness—E. L. Tuohy, M.D., Duluth, Chairman
Editorial Committee—A. H. Wells, M.D., Duluth, Chairman
Committee on Diabetes—J. R. Meade, M.D., St. Paul, Chairman
Committee on Fractures—E. T. Evans, M.D., Minneapolis, Chairman
Committee on General Practice—James A. Blake, M.D., Hopkins, Chairman
Historical Committee—Robert Rosenthal, M.D., St. Paul, Chairman
Committee on Industrial Health—L. S. Arling, M.D., Minneapolis, Chairman
Committee on Maternal Health—J. J. Swendson, M.D., St. Paul, Chairman
Committee on Medical Testimony—E. M. Hammes, Sr., M.D., St. Paul, Chairman
Committee on Military Affairs—J. H. Tillisch, M.D., Rochester, Chairman
Committee on Nervous and Mental Diseases—W. P. Gardner, M.D., St. Paul, Chairman
Committee on Ophthalmology—T. R. Fritsche, M.D., New Ulm, Chairman
Committee on Public Health Education—F. J. Elias, M.D., Duluth, Chairman
Radio and Television Committee—R. M. Burns, M.D., St. Paul, Chairman
Speakers' Bureau—H. M. Carryer, M.D., Rochester, Chairman

All the above reports were approved with the following comments: That Dr. R. C. Knutson of St. Paul be asked to present the substance of his report on the relationship of anesthesiologists to Blue Shield, mentioned in the report of the Committee on Anesthesiology, before the House of Delegates; that the Committee on Blood and Blood Banks be complimented for having secured a definite ruling from the Attorney General to the effect that osteopaths are not permitted by law to give blood transfusions; that the Committee on Child Health is to be commended for its close and continuous co-operation with health, welfare and professional organizations to advance child health and particularly for its assistance in preparation of the booklet on first aid for children, which is to be distributed to parents all over the state, also for its co-operation with the Minnesota dietetics society in a projected booklet on nutrition in the prenatal period and infancy and its participation, through its chairman, in the advisory committee on poliomyelitis vaccination. The committee approved and seconded a request of the Committee on Chronic Illness for suggestions on management of problems associated with chronic illness. It also suggested, in accordance with the recommendation of the Fracture Committee, that a fracture symposium be an annual feature of state meeting programs that the program of the Committee on Maternal Health be continued and that time be set aside at the next annual meeting for a report on findings of the maternal mortality sub-committee; that the emergency medical care phase of the Civil Defense program in which the Committee on Military Affairs is co-operating, be approved and that new health department and welfare department services for the aging, as well as for mental health, in general, be approved and that the State Advisory Board on Problems of Alcoholism, in which the Committee on Nervous and Mental Diseases is co-operating, have the doctors' support. The committee also noted the appeal of the Committee on Ophthalmology for members to earmark contributions to the Greater University Fund for an Eye Pathology Laboratory which is greatly needed and declared that the Committee on Public Health Education has made an outstanding contribution to the Association, a contribution in which the Radio and Television Committee and the Speakers' Bureau have played an important part which also should be continued. Finally, the reference committee approved a special report just handed to it by the Committee on Tuberculosis and on its policy with respect to chemotherapy outside the hospital and recommended that it be widely published through MINNESOTA MEDICINE and all other media for reaching doctors and nurses of the state.

* * *

The delegates unanimously approved the report and the Speaker called on Dr. E. M. Hammes, Sr., Chair-

man of the Committee on Medical Testimony, for discussion (Dr. Knutson not being present at this time).

Report of Committee on Medical Testimony

Dr. Hammes re-emphasized the necessity of submitting complaints in writing if the committee is to make investigation of unethical medical testimony. He said that only verbal complaints had been made by physicians and that the program of the committee which has had nation-wide attention is endangered because the committee can consider only written complaints and the only admissible complaints have come from a judge and three attorneys.

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Speaker Sheppard then called for the report of the Reference Committee on Miscellaneous Medical Economics Reports, Dr. M. J.. Anderson of Rochester, Chairman.

Miscellaneous Medical Economics Reports

DR. ANDERSON: The Reference Committee on Miscellaneous Medical Economics Reports considered reports of the following committees:

Insurance Liaison Committee—Clarence Jacobson, M.D., Chisholm, Chairman

Committee on Medical Service—J. A. Bargen, M.D., Rochester, Chairman

Committee on Rural Medical Service—Paul C. Leck, M.D., Austin, Chairman

Committee on State Health Relations—C. E. Proshek, M.D., Minneapolis, Chairman

Committee on Veterans Medical Service—R. H. Creighton, M.D., Minneapolis, Chairman

Committee on Medical Ethics—Harry Klein, M.D., Duluth, Chairman

Membership Committee—H. F. R. Plass, M.D., Minneapolis, Chairman *(For a supplement to the Membership Committee report Dr. Anderson called on Dr. Plass before presenting the reference committee report)*

DR. PLASS: We want to urge all county societies to make a ceremony of inducting new members into their societies and hope that the delegates will carry the message back to their societies. Also, we wish to report that the plan for a new members' dinner had to be abandoned because of lack of interest at this meeting. We believe newness of the idea and too little work on it at home were responsible. With more work to get the men interested, we hope to have such a dinner next year.

DR. ANDERSON: The reference committee approved all the reports with these additional comments: that the Veterans Medical Service committee be commended for its work; that a vote of thanks be given to the Committee on Medical Service for arriving at a solution of the problems involved in providing medical service under the Minnesota High School Athletic League policy, this solution calling for a perforated attachment to the policy which states that the policy is not a service, but an indemnity policy which the parent must sign and return to the high school authorities before high school athletes can participate; that the Committee on State Health Relations be urged to continue its effort to secure a medical examiner in place of the coroner system in Minnesota; that the Membership Committee be commended for the originality of its report and that it be noted that neither the Committee on Rural Medical Service nor the Committee on Medical Ethics had found it necessary to meet during the year; that the Insurance Liaison Committee is still engaged in a study of insurance policies and has not yet arrived at a definite recommendation.

Before moving acceptance of the report Dr. Anderson called on Dr. Bargen who reported that Mr. H. R. Peterson, Executive Secretary of the Minnesota High School League, has proved most co-operative in the new plan, having followed all suggestions of the committee including a suggestion that all questions involving medical matters be referred to Dr. W. E. Proffitt of Minneapolis who serves as medical director of the League without pay. Many matters have been referred to Dr. Proffitt of late with the result that the program is now working well and Dr. Proffitt should be especially commended for his service.

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Dr. Anderson's report having been approved, Speaker Sheppard asked for the report of the Reference Committee on Officers and Councilors Reports, Dr. A. E. Ritt of St. Paul, Chairman.

Officers and Councilors Reports

DR. RITT: Reports of the Secretary and Executive Secretary, Treasurer, Chairman of the Council and Councilors of Districts 1 through 9 were considered by the reference committee. All were approved and commended with the following comments: that an excellent job continues to be done by the secretary and executive secretary and that the work of the field secretary, under the direction of the executive secretary, has proved very helpful to committees and local societies throughout the state; that no additions or modifications could be suggested for the reports of the treasurer, chairman or members of the Council.

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Dr. Ritt's report was unanimously approved and the meeting recessed at 4:30 p.m. until 8:15 p.m. when Speaker Sheppard called the meeting to order for the evening session.

Second Meeting, Sunday, June 6, 1954 (8:15 p.m.)

At the request of the Speaker, Dr. Herman Drill of Hopkins, Minnesota, Chairman for the American Medical Education Fund, called attention of the delegates to the fact that more contributors to the fund are needed from Minnesota; also that the total contribution from Minnesota since 1951 was $26,279.00 but that the University has received a total of $66,956 for the same period. Dr. Drill introduced Mr. Hiram Jones of Chicago, Executive Secretary of the American Medical Education Foundation.

AMEF Fund

MR. JONES: The American Medical Education Foundation is a sponsored project of the American Medical Association, receiving its operating funds from the Association and it is thus enabled to turn over the entire proceeds of its fund raising activities for medical education to the National Foundation for Medical Education, a lay body organized to receive and distribute these funds and to raise funds for the same purpose from business and industry. There are seventy-nine medical schools in the country upon whom we rely to provide at least 6,000 medical graduates a year. Local funds upon which the parent University depends, are not sufficient to cover costs of medical education of current high standards and the deficit must be made up either by private contribution or by the federal government. It is estimated that ten million dollars a year contributed for the purpose for a period of years will

effectively prevent federal subsidies and maintain the medical schools. A contribution of $25 a year from every physician would achieve it, plus gifts of lay groups and industry. The latter obviously cannot be expected to place their gift dollars in this fund unless physicians themselves have made substantial contributions. About four and three quarter millions have been contributed so far, less by a good deal than the goal set, but growing each year. So far this year more than 11,000 contributors have given $786,000. Funds are given to the schools without restrictions since most funds received by the schools are dedicated to special purposes which allow for no shifting and cannot be used for necessary cost-of-living increases in salaries and other similar urgent needs. With your help we can get the money we need. With failure will come federal subsidy.

At the request of the Speaker, Dr. A. J. Chesley, Secretary of the Minnesota State Board of Health, first mentioned the need for a separate building on the University Campus devoted exclusively to the State Board of Health activities and including all departments now housed separately in St. Paul. He then took occasion to express his appreciation for the cooperation of the medical profession in the work of the board and asked the delegates to hear Dr. Helen L. Knudsen, Chief of the Division of Hospital Services of the board.

Dr. Knudsen reviewed the Hill-Burton hospital building program in Minnesota to date, reporting that from 1947 to 1952 a total of 121 hospitals, nursing homes and homes for the aged, providing 7,900 additional beds have been built in Minnesota at an estimated total cost of more than 73 million dollars. Of this amount 58.1 per cent came from local funds, 25 per cent from state funds and 16.8 per cent came from federal funds. The objective has been to see that regional hospital centers with adequate equipment and personnel are built or planned for all sections of the state at the same time that plans are worked out for additional beds and services at the University, especially in the new Mayo Memorial Medical Center, for use of the entire state. For staffing new facilities and raising standards of services, the department and the University, with cooperation of the physicians and the hospital association, has set up new short refresher courses held out in the state and new short training courses of two years or less for x-ray technicians, laboratory aides, medical record librarians and others held at the University. Dr. Knudsen emphasized the great need all over the country for additional beds for the aging and chronically ill, including rehabilitation facilities as well as long-term care, and praised the program now in progress in St. Louis county which is unique in the entire country and now provides 5.09 beds for this service per thousand population.

Dr. R. N. Barr, Director of the Division of Local Health Services, was also called on at Dr. Chesley's suggestion and reported that the entire program of the department of health is being re-evaluated and that communicable diseases, once so important, are being displaced as major problems by accidents, chronic diseases, care of the aged and the saving of infant lives in the first two or three days of life. In spite of tremendous progress in cutting death rates among children, no progress in saving lives in the first three days of life has been made in the last 40 years, he said. Dr. Barr also reported that there is less polio in the state than last year, that a very small percentage of children would have been offered vaccine if the state had approved the Salk vaccination program in any case. The program in many other states got underway so late that approval was withdrawn and for that reason it is likely to be impossible to study results of ten thousand vaccinations, this year, which the board with approval of the Council of the Minnesota State Medical Association, required before approving the program for this state. No protest has come in Minnesota as a result of the board's action.

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Speaker Sheppard then called on Dr. J. A. Bargen of Rochester, substituting for Dr. E. M. Jones, Secretary, who is ill, to report for the State Board of Medical Examiners.

State Board of Medical Examiners

Dr. Bargen reviewed the number of physicians, osteopaths, and others licensed in Minnesota and particularly the number of foreign graduate physicians licensed since the current program for foreign physicians began in 1949. Regulations for licensing foreign graduates as revised in 1949, call for admission on an individual basis provided credentials can be verified, plus a year of training in an approved hospital (increased to two years in May, 1954) and a requirement that these licensees obtain citizenship within two years after they are licensed. Under this program, fifty-three have been licensed but only eight are practicing in rural districts of the state in spite of the fact that all were asked when they appeared before the board if they were willing to practice in rural districts and all said yes.

Dr. H. R. Tregilgas of St. Paul reported on the work of the Minnesota State Board of Basic Sciences and outlined briefly methods used by the examiners for drawing up examination questions, methods used by some candidates for achieving passing grades in the examinations and the hope of the Board for new legislation to raise standards and require at least two years of college for admittance to a basic science examination. Also he reviewed reciprocity regulations and rulings Reciprocity with other states is now limited and partial, he said, and is likely to be reduced still further.

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Speaker Sheppard called on Dr. F. F. Callahan of St. Paul, Director of the Tuberculosis Control Section of the Division of Public Welfare, for a report from his section.

Report of Tuberculosis Control Section

Dr. Callahan outlined the change in treatment of tuberculosis as a result of chemotherapy and lung surgery which has reduced the need for long-term sanatorium care and resulted in closing of the Preventorium in St. Paul and conversion of four sanatoria in the northern section of the state to nursing homes for the aged. The new tuberculosis treatment calls for modern hospital facilities rather than custodial care, he said, and reduces length of hospital or sanatorium stay from several years to a few months if cases are discovered early. Cost of treatment per day is greater but the total cost for the patient is greatly reduced and many more are returned to become self-supporting, tax-paying citizens. He advocated a larger allowance per day by the state so that all can have modern effective treatment. The biggest current problems so far as undiscovered infections is concerned, lie in the jails among prisoners, Mexican laborers and Indians. The effort of the federal government to accomplish absorption of Indians into the general population has resulted in directives which complicate the care of tuberculosis patients among them. The answer is larger state appropriations for all tuberculosis care.

Dr. R. H. Wilson of Winona, Chairman of the State-Wide Medical Advisory Committee of the Department

of Social Welfare, reported that one of the most difficult problems involved in maintaining and defending the right of the welfare patient to free choice of physician is concerned with repeated, expensive diagnostic studies requested by the patient. He cited, among other examples, the case of a woman with heart trouble who had received adequate diagnostic studies and hospitalization near her home but for whom the same procedure was unnecessarily repeated twice in larger, more expensive centers on visits to daughters who lived in these two different centers, with a cost to the welfare department that ran to more than $3,000. Some way will have to be found, he said, to avoid that kind of expenditure. Also he noted that some doctors should be cautioned against running up unnecessary bills for welfare patients. A uniform fee schedule for use of Welfare Boards throughout the state is being considered. When it is in final form it will be submitted to all the component medical societies as well as the welfare boards for their approval, Dr. Wilson said.

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Speaker Sheppard then called for the Necrology Report from Dr. Richard Bardon of Duluth, substituting for Dr. Robert Rosenthal of St. Paul, Chairman of the Historical Committee.

A moment of silence was observed after the reading of Dr. Bardon's report and then the Speaker called for the report of the Resolutions Committee, Dr. P. E. Hermanson of Hendricks, Chairman.

Report of Resolutions Committee

Dr. Hermanson first read four resolutions, two of which were tabled. The first one, offered by Dr. James Blake as chairman of the delegation from the Sixth Councilor District, commended the University of Minnesota for developing a one-year course for training of laboratory aides and proposing that the Minnesota State Medical Association recommended creation of a board with authority to accredit laboratory aides trained at the University or other Minnesota training schools whose curriculum meets standards set by the board. This resolution was adopted.

The second introduced by the Rice County Medical Society recommended that courses in the techniques of cancer detection be given in various sections of the state in order to bring these techniques to the general practitioner, the cost to be defrayed by the Minnesota Division of the American Cancer Society. This resolution was recommended by the committee for adoption, to be referred first to the Cancer Committee for consideration and then to the Council for immediate action. The recommendation was unanimously adopted.

The third resolution of this group, from the Renville-Redwood County Medical Society, called for a change in the Veterans Administration Act by which medical and hospital care by the Administration would be provided only for veterans with service-connected disabilities. After some discussion, the delegates decided unanimously to table this resolution, and another resolution from the same society, asking that candidates for licensure to practice medicine and surgery be limited to graduates of Class "A" medical schools, was tabled also because of confusion on the part of several delegates as to its meaning.

Remaining resolutions reported at this meeting had to do with the Blue Shield's Plan "B" contract and were offered either as statements of policy or resolutions, both for and against, from several societies including the Renville-Redwood County Medical Society, the Clay-Becker County Medical Society, the Red River Valley Medical Society and the Hennepin County Medical Society. The Resolutions Committee, after extended discussion and deliberation on the matter, offered a substitute for these resolutions, reported by Dr. Hermanson as follows:

WHEREAS Plan "B" of the Minnesota Medical Service has received so much discussion both pro and con, and

WHEREAS there is a large segment of the Minnesota State Medical Association that is now opposed to the existing plan of Blue Shield, and

WHEREAS there is also a large segment of the membership that is in favor of Plan "B," and

WHEREAS there are contracts now in effect which must be honored, and

WHEREAS the present Plan "B" now is such a controversial subject,

BE IT HEREBY RESOLVED that Plan "B" as it now exists be honored to the termination of the present contracts, but in the interim we highly recommend that the Blue Shield Board meet with the opposing societies and that an attempt be made to iron out the differences as to

1. Top income of the service policy.
2. Definition of pay as to specialty groups, and further that
3. If any major change is made in income levels in service contracts,

BE IT RESOLVED that such contemplated change be presented to each member of the Minnesota State Medical Association for their information before adoption and approval by our State Medical Society.

* * *

Dr. Hermanson moved adoption of this resolution. His motion was seconded and Dr. James Blake, Hopkins, proposed an amendment to the effect that all further sales of Plan "B" contracts be stopped until the meetings suggested in the resolution have been held and the difficulties have been ironed out.

Speaker Sheppard then called for discussion, and a large number of delegates from all parts of the state discussed the entire Plan "B" contract fully, with all who wished to speak in favor or in opposition to the resolution being allowed unlimited time to address the delegates. When there were no further requests for the floor, Speaker Sheppard called first for a vote on a proposal made in the course of his remarks by Dr. C. W. Moberg of Detroit Lakes to the effect that the voting on Plan "B" be conducted by standing vote. The motion was lost and the Speaker called for a vote by ballot on the amendment offered by Dr. Blake, the object of this amendment being to make it explicit that all further sales of Plan "B" contracts should be discontinued. Members of the Credentials Committee were appointed tellers and delegates were instructed to come forward personally and deposit their ballots in the box as their names were called.

The amendment to the resolution was approved by a vote of 42 to 36, and the Speaker asked for a ballot to be cast by the same method on the substitute resolution proposed by the Resolutions Committee and including the amendment just voted by the delegates. He explained that a "no" vote on this resolution would leave Blue Shield free to carry forward plans for selling Plan "B" contracts, while a "yes" vote would be a request to the Blue Shield Board to cease selling Plan "B" contracts until difficulties could be ironed out in a series of meetings to be held for the purpose.

The motion for this resolution was lost by a vote of 41 to 37. Dr. James A. Blake of Hopkins then moved that the delegates be permitted to vote on the original resolution presented by the Hennepin County Medical Society to the Resolutions Committee.

After two motions were rejected by voice vote, one to table Dr. Blake's motion until the following day and the other to vote on it by voice vote, the Speaker informed the delegates that a motion to bring the resolution out of committee to the floor of the House would have to be made and duly voted before the resolution could be considered.

The necessary motion was accordingly made and seconded and the delegates voted 39 to 38 by ballot to bring the Hennepin County resolution, which was read as follows, to the floor:

WHEREAS the recent introduction by the Minnesota Medical Service of the service contract designated as Plan "B" is opposed by many physicians as representing a radical departure from the original philosophies and basic concepts which were accepted when the Blue Shield Plan was promulgated; and

WHEREAS a large number of physicians now participating in Blue Shield have expressed their intentions to withdraw from such participation if Plan "B" is continued which will definitely limit the free choice of physicians by patients holding Blue Shield contracts; and

WHEREAS while the Minnesota Medical Service is a completely separate organization having no responsibility to the Minnesota State Medical Association, and has in the past requested approval of various phases of its plans of operation by the Minnesota State Medical Association, and as it is the considered opinion of the House of Delegates of the Minnesota State Medical Association that the best interests of medicine will be served by the fullest possible understanding and cooperation between the State Medical Association and the Minnesota Medical Service;

BE IT RESOLVED THEREFORE that the House of Delegates rescind its previous action approving Plan "B" and that it recommends to the Minnesota Medical Service—

1. That Minnesota Medical Service discontinue any further sale of Plan "B" contracts.
2. That Minnesota Medical Service not renew such Plan "B" contracts as are now in effect after each such contract expires.
3. That Minnesota Medical Service limit future contracts for medical service to such income bracket groups as may be approved by the House of Delegates of the Minnesota State Medical Association.

Another motion to adjourn until later in the day was lost by a showing of hands, and it was then moved and seconded that the delegates adopt the Hennepin County resolution.

The Speaker called for a vote by ballot, emphasizing the fact that a "yes" vote would mean the effective end of Plan "B," while a "no" vote would mean approval of Plan "B." Several substitutes for members of various society delegations who had left the floor were accepted by the delegates before the voting. The final vote by ballot was 52 to 26 against adoption of the resolution. The meeting then adjourned at 2:15 a.m. until Monday, June 7 at 1:15 p.m.

Third Meeting, Monday, June 7, 1954 (1:15 p.m.)

The House of Delegates reconvened at 1:15 p.m. in the Ballroom, Hotel Duluth, Duluth, Minnesota, Speaker Sheppard presiding.

Dr. C. A. Anderson of Hector asked the delegates to reconsider the resolution on licensure tabled at the previous session and, after a better explanation of its purpose, to vote to suspend the rules and admit the resolution to the floor of the House for action. It was explained that the purpose of the resolution which was introduced by the Renville-Redwood County Medical Society but concurred in by other societies was to protect the people of Minnesota against attempts by cultists to liberalize the law and permit them to practice medicine and surgery in spite of the fact that they are not graduates of approved schools.

After considerable discussion, a slightly amended resolution was prepared, the rules were duly suspended, and the delegates unanimously adopted the following resolution:

WHEREAS for many years applicants for licensure to practice medicine and surgery in the State of Minnesota have been required to be graduates of Class A medical schools, and

WHEREAS such requirements are in the best interests of the people of the State of Minnesota, and

WHEREAS attempts are being made to amend the laws of the state to permit graduates of schools other than schools of medicine and surgery that have not been inspected and found to be Class A medical schools to practice medicine and surgery in all of its branches in the State of Minnesota, and

WHEREAS in our opinion, such proposals are not in furtherance of the health and welfare of the people of the state, therefore be it

RESOLVED that we go on record as being opposed to such legislative proposals and be it further

RESOLVED that we support the efforts that are being made to require all applicants for licensure to practice medicine and surgery in the State of Minnesota to be graduates of Class A schools of medicine and surgery, and be it further

RESOLVED that a copy of this resolution be sent to each member of the Legislature of this state.

Resolutions of thanks to the St. Louis County Medical Society, the newspapers and press services of the state, radio and television stations, the Duluth hotels and the Duluth Chamber of Commerce for their respective contributions to the success of the meeting were proposed by Dr. P. E. Hermanson of Hendricks, Chairman of the Resolutions Committee and unanimously adopted by the delegates.

Dr. James A. Blake of Hopkins then proposed adoption of a resolution from the Hennepin County Medical Society as follows:

RESOLVED: That this House of Delegates express to the Blue Shield Board of Directors its sincere thanks for their efforts on behalf of the doctors of Minnesota, and

BE IT FURTHER RESOLVED that the House of Delegates give the Blue Shield Board its vote of confidence and express to the Board its assurance that all elements of the profession in the state will work with the

Board in the hope of developing a Blue Shield policy which will overcome some fundamental objections expressed at this session and which will be mutually satisfactory to the Board and to participating doctors.

The resolution was unanimously adopted, and Speaker Sheppard asked for the report of the Nominating Committee, Dr. Willard D. White of Minneapolis, Chairman.

Report of Nominating Committee

Following recommendations made by Dr. White, these officers and councilors were unanimously elected by the delegates:

President-Elect—A. O. Swenson, M.D., Duluth
First Vice President—F. W. Behmler, M.D., Morris
Second Vice President—Karl E. Johnson, M.D., Duluth
Secretary—B. B. Souster, M.D., St. Paul
Treasurer—W. H. Condit, M.D., Minneapolis
Speaker of the House of Delegates—C. G. Sheppard, M.D., Hutchinson
Vice Speaker of the House of Delegates—H. M. Carryer, M.D., Rochester
Councilor, Fourth District—H. J. Nilson, M.D., North Mankato
Councilor, Sixth District—H. B. Sweetser, M.D., Minneapolis
Councilor, Eighth District—C. L. Oppegaard, M.D., Crookston

Inasmuch as Dr. A. O. Swenson was councilor of the Ninth District until elected president-elect at this session, no recommendations were made for his successor by the Nominating Committee and Speaker Sheppard called for nominations from the floor.

Dr. Paul Boman of Duluth then nominated Dr. Clarence Jacobson of Chisholm and Dr. Jacobson was unanimously elected councilor for the Ninth District to succeed Dr. Swenson.

The following nominees, whose names were submitted by the Council for delegates to the American Medical Association were also unanimously elected: F. J. Elias, M.D., Duluth; J. Arnold Bargen, M.D., Rochester; A. O. Swenson, M.D., Duluth, alternate to Dr. Elias, and Paul C. Leck, M.D., Austin, alternate to Dr. Bargen.

Minneapolis having been chosen in 1953 for the 1955 annual meeting at the special request of the Hennepin County Medical Society which will celebrate its 100th anniversary in that year, the Speaker asked for invitations for the 1956 meeting and the delegates voted unanimously to accept the invitation of the Olmsted-Houston-Fillmore-Dodge County Medical Society to hold the 1956 meeting in Rochester.

There being no further business to come before the meeting, the House of Delegates of the Minnesota State Medical Association adjourned its 101st annual session at 2:30 p.m., June 7, 1954.

CHRONIC ULCERATIVE COLITIS

(Continued from Page 663)

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Minneapolis Surgical Society

Meeting of March 4, 1954

President Robert Tenner, M.D., in the Chair

PRESENT STATUS OF SURGERY IN THE TREATMENT OF TOXIC GOITER

EDWARD S. JUDD, JR., M.D.

Rochester, Minnesota

It is fascinating to reflect on early attempts to control the complex and as yet not completely understood syndrome of hyperthyroidism. Although it seems a long time since iodine became well established as an element playing some mysterious role in this condition, many physicians practicing today recall the early efforts to bring about some change in this rather drastic upheaval of obscure metabolic relationships.

It is interesting to think back on the days when boiling water was injected directly into the thyroid gland in the hope that something might happen at least to stave off the dire circumstances. I witnessed the last such injection at the Mayo Clinic and I remember Dr. Pemberton commenting at the time that it was largely a psychotherapeutic procedure. The patient had counted on having an operation on that day; since the patient was not entirely ready for surgery, it was considered that something had to be done. Indeed, the temporary destruction or at least derangement of the gland may have altered the condition for a few days. Most surgeons can remember pole ligation, in which the superior artery on one or both sides was approached and gingerly tied off; if this were successful, the inferior artery underwent the same process later. This led to multiple-stage techniques in which one lobe of the gland was removed or resected; if the patient survived, the second one was attacked later. The wonder today is that patients who had extreme degrees of toxicity rallied enough stamina to put up with this long ordeal. However, this procedure was all that the surgeon had to offer and, since no one else had anything to offer, it was carried out for a number of years. The full development of the use of iodine as a preoperative agent led in logical fashion to the somewhat radical one-stage thyroidectomy as the treatment of choice.

In the intermediate years the surgeon enjoyed a position comparable to that of the supreme court, and when the diagnosis was established the only question that remained was "How soon can the patient be put into reasonable condition to withstand the operation?" It was granted that a certain percentage of these patients might not survive even the gentlest surgical maneuver.

Disadvantages of Surgical Treatment

Surgeons should be the first to acknowledge those drawbacks which are peculiar to surgical treatment only. The hospital mortality rate already has been mentioned and will be elaborated on later. Next is the problem of the recurrent laryngeal nerve. No surgeon, regardless of training, experience and the exercise of utmost caution, can surgically treat an extensive series of patients without some concern regarding these nerves. Considerable time and effort have been expended in the past on efforts to minimize the danger to them and these efforts have been rewarding. The exact incidence of permanent unilateral paralysis of the vocal cord is not known. It is known that a few patients will exhibit temporary paralysis on the basis of edema of the nerve and its sheath, perhaps from stretching or pinching of the nerve during operation. My associates and I have proved to our own satisfaction that this paralysis will clear up within twelve weeks. We have considered paralysis of longer duration to be permanent. We are continuing to employ local anesthesia combined with nitrous oxide in the average case so that we may determine immediately any compromise of the physiologic function of the nerve and maintain a status of temporary rather than of permanent paralysis. That is, a suture passed about the nerve may be removed at once or encroachment in the region of the nerve may be corrected. We have no argument with those who insist on dissecting the nerve, as we routinely bring the nerve into view in almost every case. However, without local anesthesia the nerve must be dissected completely and kept free during the entire procedure. Even in the most experienced hands, permanent unilateral paralysis may occur in nearly 1 per cent of patients. We are of the opinion that bilateral paralysis is completely avoidable.

The other great concern peculiar to surgical treatment is tetany. Once again, it is almost impossible to determine the exact percentage of permanent tetany in any series of cases but review of the literature suggests that it may well be 1 per cent. Cautious as surgeons may be in attempts to avoid removal of a parathyroid gland, it is still possible that such removal might be coincidental. Perhaps much more important is devitalization of the parathyroids brought about by radical attempts to rid the patient of the hyperplastic thyroid gland. Although tetany now may be treated much more easily than before it still is to be avoided if possible.

Disadvantages of Any Treatment

The possibility of recurrence of the original condition is always present. Regardless of the type of treatment

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used today, hyperthyroidism will recur in a few patients. The surgeon should be the first to admit that if sufficiently lengthy postoperative follow-up is allowed, the rate of recurrence in exophthalmic goiter will be about 5 per cent. This follow-up may require thirty years, as some patients may appear to be cured for long periods. Fortunately, recurrence after operation is extremely uncommon in the other types of hyperthyroidism. Attempts at nonsurgical control of the disease are fraught with a much higher rate of recurrence than this but it is granted that further nonsurgical treatment may ward off deleterious sequelae.

Myxedema is a condition that some surgeons still aim to produce in the patient who has a toxic goiter. My colleagues and I do not consider this to be a logical end point, and for that reason we still refuse to carry out routine total thyroidectomy in the treatment of benign goiters. The preservation of several grams of functioning tissue can provide a much happier existence for the patient. Even so we have seen myxedema in perhaps 10 per cent of our patients. Of course, this is far more acceptable than recurrence of the hyperthyroidism and is much easier to treat. Myxedema is much commoner when evidence of thyroiditis is found in the specimen. Induced hypothyroidism may not be permanent but if it can be avoided we prefer to do so.

Nonsurgical Treatment of Hyperthyroidism

During World War II, it became apparent that goitrogenic drugs might have a large bearing on the treatment of hyperthyroidism. Since 1943, Astwood has led the way in informing physicians concerning this most interesting field. A variety of products has been tested thoroughly and much information is available at present. It is beyond the scope of this discussion to delve deeply into that type of treatment, but my associates and I have experienced approximately 50 per cent failures in definitive treatment with goitrogens alone. Thiouracil was much too toxic but propylthiouracil has been used to good advantage in some cases. We have had limited experience with methylthiouracil. Toxic reactions are now few in number and often may be avoided with reasonable caution. However, we have found that the accurate, periodic, prolonged observation that is essential in every instance is so difficult that it discourages both patient and physician. It would be a rare patient indeed who would welcome the suggestion of thyroidectomy after a year or eighteen months of periodic checks in the belief that the hyperthyroidism was being brought under control. At present we are employing propylthiouracil in an occasional case as a preoperative preparatory agent. Prolonged preparation will be indicated in no more than 10 to 15 per cent of cases at most. We discontinue use of the goitrogens at least a week before operation if possible and carry along on administration of Lugol's solution alone. Should it be impossible to discontinue use of the goitrogens, Lugol's solution is also given during the last 10 days or so in an attempt to counteract the hemorrhagic, friable condition brought about in the gland by the goitrogens.

Radioactive iodine was received with great enthusiasm shortly after World War II. Its effect on the thyroid gland is obvious and it was only natural that an attempt should be made to replace surgical intervention completely. Large series of cases have been reported from several centers where radioiodine is employed in every case of toxic goiter. It is a simple method that appears to be extremely effective and rather permanent in many patients. However, some recurrence of hyperthyroidism has taken place in everyone's experience. It may be argued that recurrence may be treated by further exposure to radioactivity. However, we have encountered a few patients who have been uncontrolled after as many as seven doses of radioiodine.

The operative specimens removed after treatment with radioiodine often reveal an extremely interesting appearance of the gland in that it appears "cooked," and one certainly can see why hyperthyroidism might be controlled in many cases. Some patients have experienced temporary depression of the basal metabolic rate after use of therapeutic radioiodine, but subsequent doses have failed to produce much lasting effect on the hyperthyroidism. In addition, myxedema has been prone to develop, since it is difficult to establish the proper dosage. Estimation of the weight of the thyroid is essential in attempting to arrive at the correct dosage and it is well known that such estimation based on physical examination may be in error by as much as 75 per cent. It is to be admitted that myxedema after treatment is more acceptable than recurrence of the original disease, but a normal metabolic state is even more preferable.

At present, we are perhaps a little too conservative in our institution in the use of radioiodine in hyperthyroidism. Being aware of the changes produced in the thyroid gland, we have been concerned about possible changes in other endocrine glands. For that reason we have been reluctant to employ radioactivity in the childbearing years. The exact effect on the bone marrow and other hematopoietic structures in infants and children has not been clarified. With regard to possible carcinogenic properties of the agent, we are not aware of any documented case of cancer being produced in humans. However, we have been concerned occasionally about the kidneys, ureters and bladder, since the element is excreted in such concentrations by way of the urinary tract; as far as can be determined at present, no ill effects on this system have occurred. We use radioiodine in older patients who have hyperthyroidism. It is also used in younger patients who are poor candidates for surgical therapy for any reason. In addition, those patients who have had one or more thyroidectomies previously, who have little or no palpable glandular substance but who present themselves with recurrence of hyperthyroidism yield more material for radioactive therapy. This group, of course, will include those patients who have paralysis of the vocal cord or tetany or both, in which event the surgeon is not eager to re-explore the neck.

Major Types of Toxic Goiter

My colleagues and I have learned to draw sharp distinction between the two major forms of toxic goiter.

TABLE I. SURGICAL HOSPITAL MORTALITY RATE IN EXOPHTHALMIC GOITER

Period	Patients	Hospital Deaths	
		Number	Per Cent
1943 through 1945	1,006	5	0.5
1946 through 1953	1,378	0	0

TABLE II. SURGICAL HOSPITAL MORTALITY RATE IN ADENOMATOUS GOITER WITH HYPERTHYROIDISM

Period	Patients	Hospital Deaths	
		Number	Per Cent
1943 through 1945	713	8	1.1
1946 through 1953	992	3	0.3

TABLE III. POSTTHYROIDECTOMY HOSPITAL MORTALITY RATE
1946 Through 1953

Condition	Patients	Hospital Deaths	
		Number	Per Cent
Toxic goiter	2,370	3*	0.1
Adenomatous goiter without hyperthyroidism	3,732	2	0.05

*All three patients had adenomatous goiter with hyperthyroidism; in two the cause of death was cardiac failure and in one it was thryoid crisis.

Diffuse parenchymatous hypertrophy of the thyroid associated with Graves's disease, or exophthalmic goiter, always should be discussed separately, because this type responds much more quickly and completely to various forms of nonsurgical management than does adenomatous goiter with hyperthyroidism. When more and more medical agents became available, a critical analysis of the situation was offered by Black, in 1946.[1] At that time he reported on 302 consecutive patients who had undergone one-stage radical thyroidectomy for exophthalmic goiter; the hospital mortality rate was 0.3 per cent. The rate of recurrence was less than 5 per cent in this group of patients. He concluded at that time that the great majority of such patients were best treated surgically. He considered that prolonged preoperative preparation with propylthiouracil or an allied substance might convert the situation into a far more suitable one in the 2 to 3 per cent of patients not considered suitable surgical risks. In 1949, Pemberton and co-workers[2] followed up with a report on 455 consecutive patients who had thyroidectomy for exophthalmic goiter and in whom no hospital deaths occurred. In view of new therapy and the trend of selection of patients, I have brought the records at the clinic up to date in regard to hospital mortality in exophthalmic goiter by studying the most recent eleven-year period (Table I).

A greatly different situation exists with regard to adenomatous goiter with hyperthyroidism. We are convinced now more than ever before that these are the goiters which certainly should be removed surgically. The possibility of carcinoma in an adenomatous goiter no longer should be subject to any argument. Discussion still exists concerning the statistics of this coexistence, but the fact remains that all authorities find a definite incidence. It has been argued in the past that the association of hyperthyroidism with an adenomatous goiter renders the possibility of carcinoma extremely minute. However, our studies and those from other institutions indicate that this is no safeguard whatsoever. Fortunately thyroidectomy in these patients proves to be most gratifying. Control of the hyperthroidism is almost immediate and is indeed permanent. True recurrence of hyperthyroidism in the form of toxic nodular goiter is extremely rare, being in the neighborhood of 0.5 per cent after properly performed thyroidectomy. Somewhat higher morbidity and mortality rates are encountered in these patients. In the first place, these patients are older than those who have diffuse parenchymatous disease and all the ills that accompany advance in years are coincidental possibilities. In addition, the usual history is one of an insidious onset. The goiter may have been present for many years but fibrillation and other cardiac disturbances may have been of indefinite onset, so the patient is not aware of trouble until actual cardiac failure has ensued. Unfortunately, none of the medical agents is strikingly effective in reversing this phenomenon so that it is with some misgiving that the occasional patient is finally operated on, all other methods having failed. That proper preparation by all known means is of some value is demonstrated in the comparisons of mortality rates presented in Table II.

The situation in the most recent period with regard to the causes of hospital deaths after thyroidectomy in toxic goiter of any variety is presented in Table III.

Comment

The present report indicates the present stand of my colleagues and me with regard to the treatment of toxic goiter. We have taken this stand and consider that we are in a position to defend it. It is realized that progress in all fields of medicine and allied sciences compels us to take stock from time to time and always to be in a position to revise our thinking.

At present from 85 to 90 per cent of the patients undergoing surgical treatment for toxic goiter respond well enough to administration of Lugol's solution in large doses over a period of ten to fourteen days that we may proceed with surgical treatment with a high degree of confidence as to the outcome. The remaining patients will require preparation with a goitrogen carried out over a period lasting a minimum of six weeks and often much longer. The results of complete preoperative preparation are certainly evident from this report. The surgeon should be the first to give full credit to the clinicians for having developed the ultimate in proper selection of patients for the various methods of treatment.

Since any method of treatment for toxic goiter is known to possess a definite rate of recurrence and to be associated with certain failures and other disappoint-

(Continued on Page 693)

Minnesota Academy of Medicine

Meeting of December 9, 1953

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 9, 1953. Dinner was served at 7 p.m. and the meeting was called to order by the president, Dr. E. A. Regnier, at 8:20 p.m.

There were fifty-two members and four guests present.

Minutes of the November meeting were not read.

The president announced the death of Dr. Lee Barry, of Saint Paul, who died recently in Florida.

Dr. Ohage made a motion that any candidate who writes a thesis approved by the executive committee or the committee on credentials, becomes a member and then presents his thesis when the committee decides.

Dr. Wangensteen wished to amend this motion making it in conformity with the constitution and by-laws. Motion as amended, seconded and carried.

The scientific program followed.

Dr. Burtis J. Mears, of Saint Paul, read his inaugural thesis on "Fat Embolism."

FAT EMBOLISM

BURTIS J. MEARS, M.D.
Saint Paul, Minnesota

Fat embolism is possibly a common disorder that may be fatal, but it is difficult to diagnose with certainty. There is no pathognomonic sign, laboratory procedure, or X-ray findings to indicate that there are fat globules in the blood stream large enough to obstruct the pulmonary or cerebral arterioles. As will be shown, the history is probably the most reliable diagnostic tool.

Fat embolism is rare in children either because at this age there is insufficient subcutaneous and bone marrow fat[15] or because the proportion of the fluid olein to palmitin and stearin is much smaller.[4,11] Olein is in a semi-fluid state at body temperatures. Scuderi[10] agrees with the consensus of opinions that after injury to the bone marrow or adipose tissue there is liberation of fat which is aspirated by injured veins. Milaslavich[6] believes that bleeding into the injured area increases the pressure and enhances the liberation and aspiration of the fatty mixtures. Gauch[1] postulated that fat embolism was more common in fractures than in crushing injuries because the lacerated veins could not collapse when enclosed in a bony wall. The above hypothesis of the mechanism causing fat globules in the blood stream large enough to cause arterial obstruction, leaves many questions unanswered. For example, Lehman[5] found that there was approximately 65 cc of fat in the marrow of the femur, and if man could tolerate as much as the experimental dog, a lethal intravenous dose would be 120 cc. Also why, in some cases, should there be a latent period of forty-eight hours after injury or manipulation before symptoms occur? Ikeda,[2] in 1935, concluded that a few fat emboli do not embarrass the pulmonary circulation and it takes hours or several days for enough emboli to accumulate in the pulmonary bed to cause symptoms.

Warthin, in 1913,[13] stated that a relatively large amount of fat can obstruct many pulmonary capillaries without too much damage, but a very small amount of that fat oozing through the pulmonary capillaries and lodging in the cerebral vessels can be disastrous. This is important, as most cases dying of fat embolism, uncomplicated by shock and other factors, seem to tolerate the pulmonary symptoms relatively well. The brain injury seems to be the most disastrous sequel. Various authors[13,14] found fat globules in the lungs of a high percentage of patients dying without a history of trauma, and concluded, therefore, that fat embolism can occur without injury. This may be true, but it must be noted that no mention is made by these authors of finding fat emboli in the brain without the usual history of trauma to a long bone; and one of these authors[14] points out that very few fat globules were found in the lungs of nontraumatic deaths.

The metabolic disorders causing marked lipemia have not been proven to cause or increase the hazard of fat embolism. Scuderi[10] attempted to find oil droplets under the dark field in hyperlipemia without success, yet when he injected 5 cc of olive oil intravenously into the dog, he found droplets of oil under the dark field in the blood drawn from the opposite leg two minutes later. Fat emulsions given therapeutically to humans with oil droplets of the magnitude of one micron or less have given no evidence of fat embolism although a few have shown transitory substernal tightness during the administration.[3,9,12]

In the past twenty-two years at Ancker Hospital, Saint Paul, Minnesota, there have been eleven cases of fat embolism of the brain proven at autopsy by special staining of the frozen section. These figures are not significant as to the frequency of fat embolism because the examination of the frozen section has not been routine in accident cases and no record has been kept of the number of times this special examination has been made.

The eleven cases of proven fat embolism all had two anatomical findings in common:

1. Fat globules in the capillaries and small arterioles of the brain.
2. Petechial hemorrhages throughout the brain tissue.

The clinical history of these fatal cases showed a startling similarity. Three cases were eliminated from this study because one apparently died of a respiratory failure due to a traumatic pneumothorax, the second had no nurses notes or progress notes from which to glean a clinical picture, and the third died three weeks after injury with marked senile changes of the brain. Of the remaining cases, all were men. The ages ranged from twenty to seventy-seven, the average being 50.4. Alcoholism was apparent in one case and questionable in two. All eight cases had fractures of the lower extremities and two cases had additional fractures of the ribs. In only two cases was there evidence in the hospital records of definite respiratory embarrassment, and in one of these, cyanosis and Cheyne-Stokes respiration were the predominant symptoms prior to death. Two cases had no symptoms for a long period of time (three months and eight months) after injury but had symptoms and a fatal outcome occurring promptly following manipulation of their fractures. In seven of the eight cases severe delirium was the prominent symptom developing eight to thirty hours after injury or manipulation, the average waiting period being 13.7 hours. The nurses notes usually included descriptive notes as "talked incessantly," "tried to strike nurse," "visual hallucinations," "very restless," "pulled off dressings," et cetera. Three cases required restraints.

From this limited series of cases we get a consistent history and clinical picture. Given an adult male with a fracture of the lower extremity, who, about eight to fifteen hours after injury or manipulation of the fracture becomes suddenly confused with a severe degree of delirium, fat embolism of the brain is to be strongly suspected.

To aid in the diagnosis of fat embolism, a search for fat globules in the sputum and urine has been made by many investigators. Mussleman[7] made perhaps the most significant study of fat in the urine and sputum. He and his co-workers demonstrated fat in 32 per cent of the sputums but in only 2 per cent of the urines in a control series. On 109 cases of moderate to severe injuries, including cases of burns covering 10 to 20 per cent of the body surface, over one half showed fat globules in the urine and one third of these had pulmonic signs and one fourth had cerebral symptoms. Three of these patients coming to autopsy had fat globules in the cerebral and pulmonary vessels. All fatal cases in this series had fractures. It would seem, therefore, that fat in the sputum occurs without injury too often to be significant, but the urine carefully gathered and examined is a definite aid to diagnosis. Any fat present would float on top of the urine. The bladder has to be completely emptied, preferably with a catheter, and without an oily lubricant, and the last few cc of urine tested for the telltale fat.

Another confirmatory sign would be the finding of petechiae, especially on the palate and in the conjunctival sacs. Scuderi[10] demonstrated transitory X-ray changes in lungs of dogs following intravenous administration of fat and thought that serial X-ray studies would be of value. There were X-ray studies, all bedside films, on three of the eleven cases studied by this author. Review of these plates by a competent roentgenologist failed to reveal any edema or consolidation that could be attributed to a focal or widespread embolization.

There are many statements in the literature that fat embolism may occur without fracture of the long bones. In fact it is stated that such embolism may occur after severe burns, widespread bruising of the subcutaneous tissue, and surgery in obese patients. One author[8] in discussing the treatment of carbon tetrachloride poisoning stated that no milk or other fatty liquids should be used because of the dangers of fat embolism. These statements would seem unjustified until there has been further proof that fat embolism is a contributing factor to the morbidity or death of the patient suffering from conditions other than fracture of the long bones.

It is my belief that it is wrong to consider fat embolization in the differential diagnosis unless there has developed:

1. Petechiae of skin or mucous membrane.
2. Fat globules in urine.
3. Delirium in a patient eight to thirty hours after injury.

Conclusions

The literature on fat embolism, and eight cases of fat embolism of the brain proven at autopsy, are reviewed with the conclusion that the diagnosis can be made with accuracy only at the autopsy table, and then, only if special examination of the brain tissue is made. The diagnosis can be suspected antemortem if there is marked mental disturbance eight to thirty hours after a fracture or manipulation of a fracture of a long bone.

I must agree with Warthin that the lungs can usually tolerate a flood of fat emboli without serious results, but I must conclude that a fracture of a long bone is probably necessary to produce a huge number of fat emboli, and it is only in these latter cases that enough fat globules will ooze through the pulmonary capillaries to cause symptoms producing cerebral petechiae.

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(Continued on Page 693)

In Memoriam

LOOE BAKER

Dr. Looe Baker, pathologist for many years at Fairview Hospital in Minneapolis, died at the age of seventy at Laguna Beach in California, July 9, 1954. He had retired from practice because of ill health in 1948.

Dr. Baker was born in Detroit, Michigan. He received his secondary education at Howard Military School in Lima, Indiana, and attended the University of Michigan at Ann Arbor. He received his medical degree from Rush Medical College at Chicago and served his internship at Swedish Hospital in Minneapolis. After postgraduate training at the Rockefeller Institute, he specialized in clinical pathology and maintained an office for many years at 1111 Nicollet Avenue in Minneapolis as well as at Fairview Hospital.

Dr. Baker was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He is survived by his wife, Margaret; a son Looe, Jr.; and two daughters, Mrs. Charles Harris and Mrs. Arthur Eustis.

MICHAEL W. H. BOCKMAN

Dr. Michael W. H. Bockman, seventy-five years old, who practiced medicine for more than forty years in Minneapolis, died at Hot Springs National Park in Hot Springs, Arkansas, July 29, 1954.

Dr. Bockman was licensed to practice in 1904. He practiced industrial medicine and was a life member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

He is survived by his wife, Bessie B. Bockman.

BYRON A. KAMP

Dr. Byron A. Kamp of Albert Lea died unexpectedly of a heart ailment on the way to Naeve Hospital, Sunday, July 18, 1954, at 8:30 p.m. He was seventy-one years old and had retired from active practice in 1948.

Dr. Kamp was born in Pleasantville, Iowa, attended high school in Keokuk and received his degree in medicine from Drake University, Des Moines, in 1909. After subsequent postgraduate training in Chicago, he specialized in eye, ear, nose and throat work and became one of the founders, more than thirty years ago, of the Albert Lea Surgical and Medical Clinic.

He served in the Spanish-American War from 1900 to 1903 and also in World War I in 1918 and 1919. He was a member of the Freeborn County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a member also of the American Legion, the Veterans of Foreign Wars, the Spanish-American War Veterans and the Elks.

He is survived by his wife, the former Ruth V. Ford whom he married in 1920; one son, Gerard P. Kamp of Los Angeles; two daughters, Mrs. Arturo Anaya of El Paso, Texas, and Mrs. James F. White of Sparta, Illinois, and five grandchildren. Two sisters, Mrs. Archibald Crozier of Madison, Wisconsin, and Mrs. Albert Mix of Linden, Iowa, also survive.

WILLIAM C. LOVSHIN

Dr. William C. Lovshin, thirty-one years old, was killed in an airplane accident near Duluth Air Base on May 31. He was on active duty with the U.S. Air Force at the time and was returning from a trip to Indianapolis. Eleven other men lost their lives in the accident.

Dr. Lovshin was born at Chisholm and received his secondary education at the Chisholm High School and Phillips Exeter Academy in New Hampshire. He was graduated in medicine from the University of Wisconsin in 1947 and served a one-year rotating internship at the Indiana University Medical Center in Indianapolis before associating himself with the More-Ewens Clinic in Eveleth in 1948.

As a student, Dr. Lovshin took part in all athletics and was on his University basketball and baseball teams. After establishing himself in Eveleth he took an active part in civic affairs, becoming chairman of public health for the Junior Chamber of Commerce and a memorial in his honor is now planned by Eveleth Jaycees for his outstanding work with the Junior Chamber.

Dr. Lovshin joined the United States Air Force in 1953 and was stationed at San Antonio, Texas, before being transferred to the Duluth Air Base in August of 1953.

Survivors include his wife, Marlyn; two sons, William, Jr. and Ralph Jon; his parents, Mr. and Mrs. Joseph J. Lovshin, Chisholm; one sister Mrs. Joseph Mantel, Minneapolis; two brothers, Dr. Leonard Lovshin associated with the Crile Clinic in Cleveland, and Ralph Lovshin, track coach at Phillips Exeter Academy, Exeter, New Hampshire.

PETER HARVIE MACFARLANE

Dr. P. H. Macfarlane, fifty-nine, long associated with the Mesaba Clinic and the Chisholm Memorial Hospital, died at his home in Chisholm July 9, 1954. He was a leader in civic and educational affairs in Chisholm, a member of the Shrine, a past president of Kiwanis and well known to physicians of the state.

Dr. Macfarlane was born and went to school in Minneapolis and received his medical degree from the University of Minnesota. After a year's internship at Miller

Hospital in Saint Paul, he went to Chisholm in July, 1926, his medical education having been interrupted for service with Base Hospital 26 in France and a year's study at the University of London after World War I. He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association and of the American Legion and the Veterans of Foreign Wars.

Survivors are his wife, Marcia, and two sons, Keith, who is a student at Carleton College, and David, who is at home.

WILLIAM JOSEPH NOONAN

Dr. William J. Noonan, Minneapolis urologist, died at the age of forty-four, Thursday, July 21, 1954, following a heart attack. He had been in apparent good health until the day before his death.

Dr. Noonan was born in Minneapolis, went to school in Watertown, South Dakota, and received a B.S. degree from the University of Minnesota. He was graduated in medicine from the University of Chicago and served his internship at Albert Merritt Billings Hospital in Chicago. He was licensed to practice in Illinois after more than four years' postgraduate work in urology at the University of Chicago. After service with the United States Army from 1941 to 1945, he established himself in Minneapolis and practiced urology there until his death.

He was a member of the staffs of St. Barnabas, Abbott and Midway Hospitals and of the teaching staff of the University of Minnesota. He was also a member of the Twin City Urological Society, the Minneapolis Academy of Medicine, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He belonged to the Minneapolis Athletic, University and Dial Clubs and to Theodore Peterson Post of the American Legion.

Two brothers, Charles F. of Minneapolis and Willard F. of Grand Rapids, Michigan, survive him.

FRED WHARTON RANKIN

Dr. Fred W. Rankin, internationally known surgeon and former head of a section on surgery at the Mayo Clinic, died May 22, 1954, after a long illness at his home in Lexington, Kentucky. He was sixty-seven years old.

Dr. Rankin had been president of the American Medical Association in 1942 and president of the American Surgical Association in 1949 and he was president of the American College of Surgeons when he died. He was the third person to serve as president of all three major medical groups. The other two were Dr. C. H. Mayo and Dr. William J. Mayo, the former having been Dr. Rankin's father-in-law.

Throughout his illustrious career, Dr. Rankin received many other honors including a recent installation with four other American surgeons as honorary fellows of the Royal College of Surgeons at Edinburgh, Scotland. His military career was outstanding, also. He was a colonel in the medical reserve corps at the outset of World War II but became chief consulting surgeon attached to the office of the Surgeon General with rank of Brigadier General in 1942. He was awarded the distinguished service medal for this work and held service ribbons for most of the war theaters. He had served as a major in World War I and as commanding officer of Base Hospital No. 26 in France.

Dr. Rankin came to Minnesota first as a fellow in surgery of the Mayo Foundation in 1916. After the war, he returned to complete his fellowship and left to become professor of surgery at the University of Louisville. He returned to Rochester as head of a section in surgery at the Mayo Clinic in 1926 and remained until 1933 when he went back to Lexington and established himself again in the practice of surgery there.

He was born in Mooresville, North Carolina, and was educated at Davidson College in North Carolina and at the University of Maryland from which he received his medical degree. He held many honorary degrees from universities and colleges throughout the country.

He married Miss Edith Mayo, in 1923, and she and three sons and a daughter survive him. The children are Fred Wharton, Jr., Edith Graham, Charles Mayo and Thomas Alexander.

ORVILLE M. ROTNEM

Dr. Orville M. Rotnem of Harmony died as the result of an automobile accident at St. Mary's Hospital in Rochester, July 25, 1954. He was thirty-five years old.

Dr. Rotnem had been driving with his wife, Marjorie, when his car went out of control two miles south of Mabel in Fillmore County. He was returning from Iowa City where he had been attending postgraduate courses in medicine when the accident occurred. Mrs. Rotnem was also injured in the crash and was taken to the hospital for treatment.

Born at Caledonia, Dr. Rotnem went to high school at Edison in Minneapolis and received his degree in medicine from the University of Minnesota. He served a nine months' internship at Milwaukee County Hospital in Milwaukee, Wisconsin, followed by nine months' postgraduate work in surgery at the same hospital. He served in the United States Army Medical Corps and, after his discharge, he practiced briefly at Spring Grove and at Mabel before moving to Harmony. He was a member of the staffs of the Harmony Community Hospital and the Decorah Hospital at Decorah, Iowa, and had served as health officer at Mabel. He was a member of the Olmsted-Houston-Fillmore-Dodge County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Survivors include his wife, Marjorie; a daughter, Diane; a son, Richard; and his parents, Mr. and Mrs. Thomas Rotnem of Minneapolis.

✦ Reports and Announcements ✦

MAYO MEMORIAL DEDICATION

"Medical Education and Research Freedom and Progress in Mid-Twentieth Century" will be the theme of the two-day activities dedicating the University of Minnesota's new Mayo Memorial.

According to University Medical School Director Robert B. Howard, M.D., all physicians and interested persons are invited to attend Mayo Memorial dedication programs, Thursday and Friday, October 21-22.

Highlighting activities will be the dedication banquet Thursday evening, October 21, in Coffman Memorial Union main ballroom. Harold S. Diehl, Dean, College of Medical Sciences, will preside. Speakers will include Donald J. Cowling, chairman, Committee of Founders, Minnesota Governor C. Elmer Anderson, Charles W. Mayo, Professor of Surgery, Mayo Foundation, Leonard A. Scheele, Surgeon General, U.S.P.H.S., James L. Morrill, president of the University of Minnesota, and Dr. Alan Gregg, Vice President of the Rockefeller Foundation.

The complete dedication program is as follows:

Thursday, October 21

Morning Session—10 a.m.

SPEAKERS:

William P. Shepard, Second Vice President, Health and Welfare Division, Metropolitan Life Insurance Company.

A. C. Furstenburg, Dean of the University of Michigan Medical School and Professor and Chairman of the Otolaryngology Department.

Osborne A. Brines, Professor of Pathology, Wayne University College of Medicine.

Frank H. Krusen, Professor and Head of the Section of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester.

Afternoon Sessions—1:30-5:00 p.m.

SPEAKERS:

J. Chassar Moir, Professor of Obstetrics and Gynecology, Oxford University, England.

I. S. Ravdin, John Rhea Barton, Professor of Surgery, University of Pennsylvania.

Mrs. Lucile Petry Leone, Assistant Surgeon General and Chief Nurse, office of the U. S. Public Health Service.

Henry W. Woltman, Professor and Chairman of Neurology and Psychiatry Sections, Mayo Clinic, Rochester.

Francis J. Braceland, Psychiatrist-in-chief, Institute of Living, Hartford, Conn.

Dedication Banquet—6:30 p.m.

Friday, October 22

Morning Sessions—9:00-11:35 a.m.

SPEAKERS:

Rene Dubos, member of the Rockefeller Institute for Medical Research.

Jack Masur, Assistant Surgeon General and Chief of the U. S. Public Health Service Bureau of Medical Services.

William H. Sebrell, Director, National Institutes of Health, U. S. Public Health Service.

Charles A. Janeway, Thomas Morgan Rotch Professor of Pediatrics, Harvard University Medical School.

R. R. Newell, Professor of Medicine, Stanford University School of Medicine.

Afternoon Sessions

12:00-1:30 p.m.—University Hospitals Staff Meetings.—Herman R. Drill, Past President, Minnesota Medical Alumni Association, and Ray M. Amberg, Director, University of Minnesota Hospitals.

1:30-2:00 p.m.—Minnesota Medical Alumni Association annual meeting.

2:00 p.m.—Annual Medical Alumni Association Clinics.

6:30 p.m.—Radisson Hotel, Minneapolis, Medical Alumni Association banquet.

FAMILY DOCTORS' DAYS
at the
University of Minnesota Hospitals

All physicians are cordially invited to attend the following Family Doctors' Days which will be presented under the direction of the department indicated.

October—No Family Doctors' Day
(Oct. 21-22—Dedication of Mayo Memorial)
November 17—Department of Pathology
December 15—Division of Ophthalmology
January 19—University Hospitals Administration

Activities begin with luncheon at 12:15 p.m. with the staff of the department in the Hospital Dining Room and will continue throughout the afternoon.

For further information, write the head of the department concerned or the Director, Department of Continuation Medical Education, University of Minnesota Hospitals.

CRIPPLED CHILDREN'S SERVICES

The following Crippled Children's services fall clinic schedule has been released:

Place	*Date*	*Building*	*Counties*
*Crookston	Sept. 16	High school	Norman, Polk
*Bemidji	Sept. 25	High school	Beltrami, Hubbard, Clearwater, Cass.
*Little Falls	Oct. 2	Lindbergh school	Morrison, Todd, Mille Lacs
*Marshall	Oct. 9	High school	Lac qui Parle, Redwood, Lincoln, Yellow Medicine, Lyon
**Virginia	Oct. 13	City Hall	St. Louis
*Fergus Falls	Oct. 16	High school	Otter Tail, Wilkin
**Winona	Oct. 20-22	City Building	Fillmore, Winona, Wabasha, Houston, Olmsted
**Hibbing	Oct. 27	Village Hall	St. Louis
*Willmar	Oct. 30	High school	Chippewa, Meeker, Renville, Kandiyohi, McLeod, Swift
*Mankato	Nov. 6	New High school	Blue Earth, Sibley, Nicollet, LeSueur, Martin, Watonwan, Faribault
**Hibbing	Nov. 10	Village Hall	St. Louis
*Anoka	Nov. 13	Lincoln school	Anoka, Chisago, Hennepin, Isanti, Kanabec, Pine, Ramsey, Sherburne, Washington, Wright

*County Welfare Board social service for clinic intake arranged by field representative. New patients to bring written referrals from physicians.

**Social problems at clinic to be referred to County Welfare Board on day of clinic. Intake service not necessary from Welfare Board. Gillette patients not to attend clinics. New patients to bring written referrals from physicians. All patients to have appointments arranged through Public Health Nurse.

APPLICATIONS ACCEPTED

The American Board of Obstetrics and Gynecology, Inc., announces that applications for certification (American Board of Obstetrics and Gynecology) for 1955 Part I examinations are still being accepted. Candidates may contact Dr. Robert L. Faulkner, Secretary, 2105 Adelbert Road, Cleveland 6, Ohio.

MEDICAL MEETINGS

National

American Cancer Association, Board of Directors and special committee meetings, Hotel Radisson, Minneapolis, Minn., June 2, 1955.

American College of Gastroenterology, First annual convention, Shoreham Hotel, Washington, D. C., October 25-27, 1954.

American Public Health Association, Eighty-second annual meeting, Buffalo, New York, October 11-15, 1954.

Association of Military Surgeons of the United States, Sixty-first annual convention, Hotel Statler, Washington, D. C., November 29-December 1, 1954.

Muscular Dystrophy Associates of America, Inc., Third annual conference, New Yorker Hotel, New York City, October 8-9, 1954.

National Gastroenterological Association, Nineteenth annual convention, Shoreham Hotel, Washington, D. C., October 25-27, 1954.

National Society of Crippled Children and Adults, Hotel Statler, Boston, Mass., November 3-5, 1954.

Pharmacy and the Conquest of Disease, Bicentennial conference, Columbia University, New York City, October 14-15, 1954.

International

International Anesthesia Research Society, Los Angeles, Calif., October 10-15, 1954.

International Congress of Diseases of the Chest, Barcelona, Spain, October 4-8, 1954.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The American College of Chest Physicians registered 1150 physicians and guests at its twentieth annual meeting held in San Francisco, California, June 17-20, 1954. This was the largest registration of any of the previous College meetings held on the west coast.

Officers elected for 1954-1955 are:

President—William A. Hudson, Detroit, Michigan
President-Elect—James H. Stygall, Indianapolis, Indiana
First Vice President—Herman J. Moersch, Rochester, Minnesota
Second Vice President—Burgess L. Gordon, Philadelphia, Pennsylvania
Treasurer—Charles K. Petter, Waukegan, Illinois
Assistant Treasurer—Albert H. Andrews, Jr., Chicago, Illinois
Chairman, Board of Regents—Donald R. McKay, Buffalo, New York
Historian—Carl C. Aven, Atlanta, Georgia

Dr. John F. Briggs of Saint Paul is Regent for the District and Dr. Arthur M. Olsen of Rochester is Governor of the College for Minnesota.

The twenty-first annual meeting of the College will be held in Atlantic City, New Jersey, June 2-5, 1955.

FELLOWSHIPS FOR BASIC RESEARCH IN ARTHRITIS

The Arthritis and Rheumatism Foundation is offering the following research fellowships in the basic sciences related to arthritis:

1. Predoctoral fellowships ranging from $1,500 to $3,000 per annum, depending on the family responsibilities of the fellow, tenable for 1 year with prospect of renewal.

2. Postdoctoral fellowships ranging from $4,000 to $6,000 per annum, depending on family responsibilities, tenable for 1 year with prospect of renewal.

3. Senior fellowships for more experienced investigators will carry an award of $6,000 to $7,500 per annum and are tenable for 5 years.

The deadline for applications is October 15, 1954. Applications will be reviewed and awards made in January, 1955.

For information and application forms, address Medical Director, The Arthritis and Rheumatism Foundation, 23 West 45th Street, New York 36, N. Y.

CONFERENCE ON SILICOSIS AND OCCUPATIONAL CHEST DISEASES

A conference on silicosis and occupational chest diseases jointly sponsored by the McIntyre Research Foundation of Toronto, Canada, and the Saranac Laboratory of Saranac Lake, New York, has been arranged for Monday, Tuesday, and Wednesday, February 7, 8, and 9, 1955, in the Town Hall at Saranac Lake.

The papers to be presented in the five full sessions will all report on original work conducted or sponsored by either the McIntyre Research Foundation or the Saranac Laboratory. In addition there will be papers presented by guest lecturers.

Anthony J. Lanza, M.D., formerly director of the Institute of Industrial Medicine and now emeritus professor of Industrial Medicine at New York University-Bellevue Medical Center, has been named chairman of the conference.

Business arrangements, including reservations, will be handled by Norman R. Sturgis, Jr., and the treasurer will be Clarence L. Wagner, both of the Trudeau-Saranac Institute staff. All communications concerning the conference should be addressed to N. R. Sturgis, Saranac Laboratory, Saranac Lake, New York.

SYMPOSIUM TO BE TELECAST

A nationwide closed circuit hookup will be used for the first time for postgraduate medical education September 23, when a symposium on the subject "Management of Hypertension" will be broadcast.

The program, which is sponsored by the American College of Physicians, will be received from 6 to 7 p.m., September 23, at the Radisson Hotel, Minneapolis.

GRANT AWARDED

The Eli Lilly Company of Indianapolis, Ind., has announced that a one-year research grant has been awarded the University of Minnesota. The grant will be used for studies on the relationship of Vitamin B_{12} and intrinsic factors under the direction of Dr. Paul S. Hagen, assistant professor of medicine.

COURSE FOR X-RAY TECHNICIANS

The Minnesota Society of X-Ray Technicians announces a regional refresher course for x-ray technicians for the Twin City region.

The course, jointly sponsored by the Society, the Minnesota State Medical Association, the Minnesota Hospital Association and the Minnesota Department of Health, will be held Tuesday and Thursday evenings from September 28 through November 4 on the University of Minnesota Campus.

The course is open to technicians in hospitals and in physicians' offices. Registrations should be sent to Mr. Glen Taylor, Executive Secretary, Minnesota Hospital Association, Student Health Service, University of Minnesota, Minneapolis 14, Minnesota. Tuition fee is $25.00.

MINNEAPOLIS HEALTH DAY

October 7 is *Health Day* in Minneapolis.

Conducted as an open house, *Health Day* will be held from 9 a.m. to 3:30 p.m. in the Radisson Hotel ballroom. It is a free community service project devoted to health problems and their solutions. The public is invited.

Dr. Walter C. Alvarez will speak on problems of the aging and Dr. Leo Rigler will talk on cigarettes and lung cancer. A movie on heart surgery, "One Victory," will be shown and discussed by Dr. C. Walter Lillehei and Dr. Richard Varco.

Dr. Reginald Dunton and Dr. R. F. Johnson will talk on "corrective dentistry." "What Can be Done about Lung Tumors" is Dr. Kenneth Jensen's topic. Russell Nye, Northwestern Hospital administrator, will discuss "You and Your Hospital."

There will be twenty-five various exhibits and anyone may obtain free chest x-ray, diabetic test and blood type.

Health Day is presented by the Women's Auxiliaries of the Hennepin County Medical Society and Minneapolis District Dental Society. General chairman is Mrs. Robert B. Potter, with Mrs. Milton T. Lundblad as dental chairman. Co-chairmen are Mmes: Rolf L. Andreassen, Edward Donatelle, Freeman Kovack, Malcolm McCannel, William T. Smith and Cabot Wohlrabe.

Thomas P. Cook, executive secretary of the Hennepin County Medical Society, is acting as advisor.

CONTINUATION COURSES

A continuation course in *The Use of the Minnesota Multiphasic Inventory (MMPI)* will be presented October 14 to 16, 1954, at the Center for Continuation Study. The course is intended primarly for clinical psychologists but will also be open to psychiatrists and other physicians who may be interested in the use of the MMPI. Guest faculty will include Drs. George Welsh, Associate Professor, Department of Clinical Psychology, University of North Carolina, Chapel Hill; and Harrison Gough, Assistant Professor, Department of Psychology, University of California, Berkeley. The course will be presented under the direction of Dr. Starke R. Hathaway, Professor and Director, Division of Clinical Psychology, and the remainder of the faculty will be drawn from the faculty of the University of Minnesta.

On November 4 to 6, 1954, the University of Minnesota will present a continuation course in *Anesthesiology for General Physicians* at the Center for Continuation Study. The course will deal with all types of anesthetic techniques, including those used in obstetrics. Newer anesthetic agents will be discussed. The course will be presented under the direction of Dr. Frederick H. Van Bergen, Associate Professor and Acting Director, Division of Anesthesiology, University of Minnesota. The faculty will include several outstanding guest speakers and members of the faculty of the University of Minnesota Medical School and the Mayo Foundation.

* * *

The annual continuation course in *Radiology for Specialists* will be held at the Center for Continuation Study November 9 to 13, 1954. *Bone and Joint Diseases* will be the subject of this year's course. Guest faculty will include Drs. C. Howard Hatcher, Professor of Orthopedic Surgery, University of Chicago School of Medicine; Paul C. Hodges, Professor, Department of Radiology, University of Chicago School of Medicine; John F. Holt, Professor, Department of Radiology, University of Michigan Medical School, Ann Arbor; G. S. Lodwick, Chief, Department of Radiology, Veterans Administration Hospital, and Clinical Assistant Professor, Department of Radiology, State University of Iowa College of Medicine, Iowa City; Edward E. Neuhauser, Associate Radiologist, Harvard Medical School, Boston; and Isidore Snapper, Director of Medicine and Medical Education, Beth-El Hospital, Brooklyn, New York. The course will be presented under the direction of Dr. Leo G. Rigler, Professor and Head, Department of Radiology, and the remainder of the faculty will include members of the faculty of the University of Minnesota Medical School and of the Mayo Foundation.

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The University of Minnesota announces a continuation course in *Infectious Diseases for General Physicians* which will be held at the Center for Continuation Study next November 18 to 20. Practical and fundamental aspects of the diagnosis and management of infectious diseases of all types will be taken up. Guest speakers will be Drs. Harry Eagle, Chief, Section of Experimental Therapeutics, National Microbiological Institute, National Institutes of Health, Bethesda, Maryland; and Ellard Yow, Assistant Professor of Medicine, Baylor University School of Medicine, Houston, Texas. Dr. Eagle will also present the annual Journal-Lancet lecture Thursday evening, November 18. The course will be presented under the direction of Dr. W. W. Spink, Professor, Department of Medicine, and members of the faculty of the University of Minnesota Medical School and the Mayo Foundation will complete the faculty.

PRESENT STATUS OF SURGERY IN THE TREATMENT OF TOXIC GOITER

(Continued from Page 685)

ments, my colleagues and I still resort to surgical treatment in many patients since it alone has stood the test of time.

Summary and Conclusions

The steady decline in hospital mortality rate after thyroidectomy has extended almost to the end point.

Correct preparation of the patient by means of Lugol's solution, or with propylthiouracil whenever definitely indicated, has been responsible for this agreeable state of affairs.

Clinicians should get full credit for this continuing improvement.

Administration of radioactive iodine appears to be a simple and often extremely effective method of controlling exophthalmic goiter. Someday it may prove to be the method of choice. At present its unknown factors limit its universal use.

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(Continued from Page 687)

9. Neptune, E. M., et al: The successful administration of large quantities of fat emulsions to man. Surg. Gynec. & Obst., 92:365-369.
10. Scuderi, C. S.: Fat embolism. Surg. Gynec. & Obst., 72:732-746, 1941.
11. Speed, K.: Fractures and Dislocations. 1st ed. New York: Lippincott, 1915.
12. Stare, F. J., et al: Fat in parenteral nutrition. Surg. Gynec. & Obst., 92:246-249.
13. Warthin, A. S.: Traumatic lipemia and fatty embolism. Int. Clinic, 4:171-227, 1913.
14. Wright, R. B.: Fat embolism. Ann. Surg., 96:75, 1932.
15. Zenker: Cited by Scuderi.

Gareth Hiebert, of the editorial department of the *Saint Paul Dispatch,* then gave a talk on "The Doctor and the Press."

There being no further business to come before the academy, the meeting was adjourned.

ROBERT E. PRIEST, M.D.,
Secretary.

Of General Interest

NEW LOCATIONS

Dr. Vernon D. Erickson of Minneapolis has joined the staff of the Grand Rapids Clinic. Dr. Erickson studied internal medicine last year at General Hospital, Minneapolis.

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Dr. Arthur Neumaier, who has practiced medicine in Glencoe since 1941, has joined the Glendive Clinic, Glendive, Montana, as internist.

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Dr. Alex Barno has returned to his practice in St. Louis Park after spending eighteen months with the Navy at Key West, Florida.

* * *

Dr. C. A. Rohrer, formerly of Waterville, has joined the staff of the Worthington Clinic. Dr. Rohrer, a University of Minnesota medical school graduate, has done radiologic work at Des Moines, Iowa, and the University of Iowa.

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Dr. Vincent Ryding, who has been resident surgeon at Northwestern Hospital in Minneapolis and Methodist Hospital in Dallas, Texas, is now with the Surgical and Medical Clinic in Albert Lea.

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Dr. John Sarno, a former Newark, New Jersey, surgeon, has become affiliated with the Falls Clinic in Thief River Falls.

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Dr. Gregory Olson, a former Redwood Falls physician, is now associated with **Dr. J. E. Verby** and **Dr. David Allison** of Litchfield.

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Dr. C. J. Swendseen, who has practiced medicine in Minneapolis and Graceville, is now located in Alexandria.

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Dr. Henry A. Johnsen, Jr., a former fellow in the section of Internal Medicine at Mayo Clinic, Rochester, has joined the staff of the Lenont-Peterson Clinic in Virginia.

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Dr. R. J. Camp of Woodward, Oklahoma, has become associated with the Madison Clinic at Madison.

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Dr. Donald M. Odland of Dell Rapids has begun general practice of medicine in Luverne. Dr. Odland recently completed advanced work in surgery at the University of Minnesota.

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Dr. Eldore B. Nash has taken over duties with Dr. E. Lillian Parson and Dr. L. R. Parson in their Elbow Lake Clinic. Dr. Nash, a University of Minnesota Medical School graduate, took his internship at Memorial Hospital in Phoenix, Arizona.

Dr. Malcolm M. Fifield recently announced the opening of an office for the practice of urology in the Duluth Medical Arts Building. Dr. Fifield has completed a three-year residency at Veterans Hospital and University Hospitals, Minneapolis.

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Dr. G. Charles Wilcox, who has practiced medicine in Wood Lake the past year, has moved to Albert Lea to join the Medical and Surgical Center. Dr. Wilcox previously resided in St. Peter.

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Dr. B. R. Kirklin, Rochester radiologist, will move his offices from the First National Bank building to the Kahler Hotel.

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After fifteen years with the Mesaba Clinic, **Dr. A. C. Tingdale** has opened offices for private medical practice in Hibbing. Dr. Tingdale is a staff member of Hibbing General Hospital and Chisholm Memorial Hospital.

Dr. Clarence J. Rowe, Jr., is director of the newly opened Hamm Memorial Psychiatric Clinic in St. Paul. The clinic offers out-patients psychiatric therapy to Ramsey County adults unable to pay for private care.

* * *

A Mountain Lake physician, **Dr. Peter J. Pankratz,** has filed as a candidate for state senator in the 20th District, which includes Cottonwood and Jackson counties. A graduate of the University of Minnesota School of Medicine, Dr. Pankratz has practiced for twenty-one years. He served with the U. S. Army Air Force as flight surgeon during World War II.

* * *

Dr. Nellie Holman's experiences as a medical missionary to China in the 1920's are recorded in a new book release "My Most Unforgettable Patients." The author, a former Appleton resident, was graduated from the University of Minnesota medical school in 1919. A missionary of the Evangelical Lutheran Church, Dr. Holman spent eleven years in China. In 1931, Dr. Holman contracted tuberculosis and returned to Minneapolis' Glen Lake Sanatorium. Dr. Holman now makes her home in Melbourne, Florida.

* * *

Dr. J. F. Shronts, medical director of General Mills, Inc., has been elected president of the Minnesota Academy of Occupational Medicine and Surgery. Other officers include **Dr. Leslie Foker** of Minneapolis, vice president; **Dr. James Fox,** Minneapolis, secretary; **Dr. Tracy E. Barber,** Austin, treasurer, and **Dr. Gordon MacRae,** Duluth, recorder. The academy was organized last year to promote sound medical practices in industry.

An open house observing the fourth anniversary of the Sandstone State Hospital was held last month. **Dr. Kenneth Douglas,** director, was in charge of the program, which included guided tours of the various departments and wards and talks by staff members.

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Dr. Norman B. Metcalf, who has been serving as lieutenant in the Navy hospital at Jacksonville, Florida, has resumed medical practice in Princeton; He is associated with the Blomberg-McManus Clinic.

* * *

Now serving as chief of staff physicians affiliated with Northwestern Hospital of Thief River Falls is **Dr. M. D. Starekow. Dr. William Fiegal** was elected vice president and **Dr. D. E. Greene** will serve as secretary-treasurer.

* * *

A Superior Service Award was presented **Dr. Irvin Kerlan,** a former resident of McGregor, by the U. S. Department of Health, Education and Welfare at its third annual Honor Awards ceremony. Dr. Kerlan, a graduate of the University School of Medicine, is employed by the department in Washington, D. C. Last year he contributed more than 1,800 children's books and illustrations for use by the University's Library Instruction and Education sections.

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Studying medical programs in Europe is **Dr. James R. Fox** of Minneapolis, Dr. Fox, who is associated with the University of Minnesota Health Service, will study medical facilities and payment programs in the Scandinavian countries and will incorporate his findings in a report similar to that prepared after a survey of Great Britain in 1952. Dr. Fox will also visit Vienna and Berlin during his stay. Dr. Fox is director of the radio and television program "How's Your Health," a joint project of the Minnesota State Medical Association and the University of Minnesota. His trip abroad is sponsored by the American Medical Association.

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The appointment of **Dr. Otto E. Benell** of Virginia, as staff radiologist of Falls Memorial Hospital, International Falls, has been announced. Dr. Benell will spend one day each week in International Falls to supervise x-ray work.

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Dr. Elizabeth A. Leggett has resigned her position as head of the Indian out-patient office of the Indian Welfare Department in Bemidji. Dr. Leggett will be associated with the Santa Ana, California, Health Department. Before moving to Bemidji, Dr. Leggett practiced at the Ah-Gwah-Ching sanatorium and at Cass Lake.

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New president of the Minnesota Radiological Society is **Dr. Chauncey N. Borman** of Minneapolis. Other newly-elected officers of the society are: **Dr. Harold O. Peterson,** St. Paul, vice president; and **Dr. John R. Hodgson,** Rochester, secretary-treasurer.

Reporting for duty at Fort Sam Houston, Texas, this month is **Dr. H. M. Brown,** formerly of Walker. Dr. Brown will report to the Medical Officers service school for orientation and temporary duty before receiving a permanent duty. His tour of service will be twenty-one months.

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Dr. George Nelson Aagaard, former director of Post-Graduate Medical Education at the University of Minnesota, has been appointed dean of the University of Washington Medical School by the University's Board of Regents. Dr. Aagard, who received his medical degree from the University of Minnesota in 1937, was named to the University faculty in 1941. In 1948 he was appointed Post-Graduate Medical Education director and associate professor of medicine. He held this appointment until 1952, when he was named dean of the University of Texas' Southwestern Medical School. The Washington post has been open since 1953, when **Dr. Edward L. Turner,** first dean of the School of Medicine, resigned to become secretary of the Council of Medical Education and Hospitals of the American Medical Association. Dr. Aagaard assumed his new post the first of this month.

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G. Albin Matson, director of the Minneapolis War Memorial Blood Bank, is attending two international conferences in Paris this month. He will give a paper at the fifth International Congress of Blood Transfusions and will attend the fifth International Congress of Hematology. Matson's paper will deal with hereditary blood factors among the American Indians.

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A Marshall physician, **Dr. Robert F. Gray,** has left for two years of research work in British East Africa. Sponsored by the Ford Foundation, Dr. Gray will use the fellowship to survey both health problems among the natives and medical research on these problems. Dr. Gray has served with both the American and British Armies, and was stationed in Senegal, French West Africa and British East Africa. He returned to Africa for a year in 1950 on a Fulbright research grant for study of native medicine in Tanganyika.

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Commencement speaker at exercises ending the University's second summer session was **Dr. Charles Mayo,** Rochester physician and statesman. Some 400 students and their guests heard Dr. Mayo, who is member of the U. S. delegation of the UN as well as a University Regent, speak on the subject "The Factor of Time."

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Dr. Moses Barron of Minneapolis has been named governor of the American Diabetes Association for the state of Minnesota, **Dr. Henry Mulholland,** association president, has announced. Dr. Barron also was re-appointed to the committee on detection and

education and will supervise state-wide effords at further education in diabetes and its control.

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More than 1,000 visitors attended the grand opening of Hawley's new Medical Center recently. Included in activities were a band concert, refreshments and tours of the Center. **Dr. Arnold M. Berg** and **Dr. V. D. Thysell** will be located in the new building.

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Dr. Alfred Doscherholmen, resident in medicine at the University of Minnesota, has been awarded a $4,000 grant for research on the absorption of vitamin B-12 into the blood. Dr. Doscherholmen will conduct his research at Veterans Hospital, which is affiliated with the University Medical School.

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A member of the Naval Reserve, **Dr. L. E. Steiner,** of Albert Lea, has been called to Washington, D. C., for a tour of active duty. He reported to the Navy Bureau of Medicine. Dr. Steiner, who has been active in Albert Lea civic groups, has been secretary of the Freeborn County Medical Society for five years, member of the House of Delegates of the Minnesota State Medical Association and on the board of editors of MINNESOTA MEDICINE.

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Making his first bid for public office is **Dr. T. J. Jensen** of Duluth. Dr. Jensen, who has practiced medicine in West Duluth for forty-four years, is a candidate for coroner. Dr. Jensen not only is active in a number of West End church and civic groups, but is a member of the St. Louis County Medical Society and the Minnesota and American Medical Associations. He is on the staff of St. Luke's, St. Mary's and Miller Memorial Hospitals.

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Training as a lieutenant at Great Lakes Training Station, Illinois, is **Dr. Leong Hom** of Battle Lake. Dr. Hom plans to return to his practice in Battle Lake after his tour. He has been in the Minnesota community since August, 1950.

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Dr. Carl Lembke, Minnesota Lake physician and farmer, proved his farming prowess by taking high point honors in all horticulture-agriculture exhibits at the community's Festag celebration recently. Dr. Lembke exhibited grains, flowers, wildflowers and weeds at the annual Minnesota Lake agricultural festival.

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"Local Care of Infantile Eczema" was the topic when **Dr. Lloyd S. Nelson** spoke to members of the Freeborn County Medical Association. The meeting was held August 19 in Albert Lea.

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A gift contribution to the St. Louis County Medical Library is Volume II of Clinical Roentgenology (Head, Neck and Spinal Column) by deLorimier, Moehring and Hannan. The donor was **Dr. Henry G. Moehring** of Duluth, a co-author.

Dr. Arthur H. Wells of Duluth attended the International Congress of Clinical Pathology in Washington, D. C. The group met September 6-10.

BLUE SHIELD—BLUE CROSS NEWS

At the annual meeting of the Minnesota State Medical Association in Duluth in June more than one hundred interviews were held with physicians by representatives of Blue Shield. Among the subjects that were most important to the physicians was the physician-patient relationship. Many were of the opinion that prompt and correct filing of Blue Shield claims and rapid processing of the patient's claim by Blue Shield lead to an improvement of the relationship between the doctor, his patient and Blue Shield.

An analysis of Blue Shield claims shows that prompt payment of claims is delayed by the lack of such information on the Medical Service Report as: the status of Workmen's Compensation, the patient's birth date, the relationship of the patient to the subscriber, the income of the subscriber, the date professional services were rendered, the dates of admission and discharge from the hospital, the doctor's charges for the services rendered and the signature and Blue Shield serial number of the attending physician.

Omission of these items requires obtaining additional information from the doctor's office and also results in delay in the payment of the claim by Blue Shield. Of greater importance is the fact that such delay can impair the doctor-patient relationship and also frequently leads to dissatisfaction between the physician, the patient and Blue Shield.

The Medical Service Report or claim blank is worded in such a manner as to reduce to a minimum the time and effort required for its proper completion.

The birthdate of the patient is frequently omitted by both doctor and subscriber but it is important in the correct payment of Blue Shield claims. For example, it is not possible to pay some claims such as those for tendon repair unless the age of the patient is known, due to the fact that Blue Shield allowances for tendon repair in children under five years of age are greater than those for persons of more advanced years. Other considerations such as the validity of a claim for a dependent are dependent upon the subscriber's birthdate.

Incorrect payment of a claim results from inaccuracies and incompleteness in that portion of the Medical Service Report set aside for stating the services rendered. With all services, accurate listing of the services performed together with the date the services were rendered is necessary to assure prompt and proper payment of claims.

Moreover, it is necessary that the doctor's name, address, and participating serial number as well as his signature be furnished at the bottom of the medical report. Lack of this information delays the payment of claims until each item is obtained. Furthermore, it is difficult to prepare and send checks without the correct spelling of the doctor's name and address.